A CAHNERS PUBLICATION

MAY, 1961/75c

Brick & Clay RECORD

New Kiln at Gleason Clay Products—Page 40

Clay Pipe Executives Comment

Making Insulating Firebrick at J-M

Which Aggregates for Clay Block?

this is a *Perfect* brick . . .

. . . a creation of the Miller CROS-FLO Tunnel Kiln !

You, too, can produce perfect . . . more saleable ware . . . at an amazingly high production rate with the Miller Cros-Flo Tunnel Kiln. Owners across the nation report excellent production results and economical operation . . . day after day.

Let experienced Miller engineers analyze your needs and submit recommendations. There's no obligation, of course.

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Circle Service No. 10

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Jumbos

Utilities

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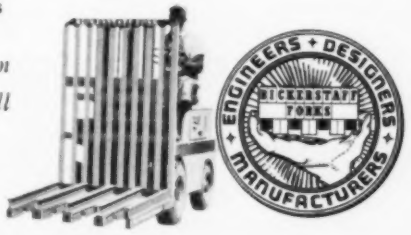
You name 'em and Bickerstaff will move 'em. Just tell us your need. Our engineers will go to work — and soon — handling "specials" will be just a routine matter for you. With Bickerstaff on the job — your handling costs will be greatly reduced. You will speed the flow of brick in and out of inventory — and to truck or freight car. No matter what your handling needs may be — Bickerstaff can help.

* M-M MINIMUM MAINTENANCE ON ALL FORKS

Get the complete "Profit-Making Story" on brick handling. Call, wire or write. We'll send it to you immediately.



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Circle Service No. 11

IMPROVED DRY PANS & GRINDERS

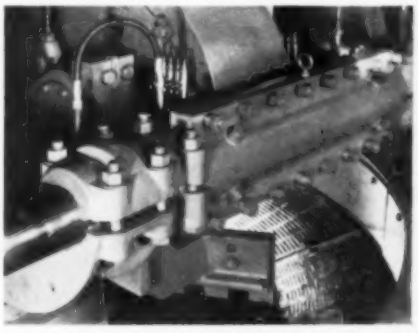
are our *business*

Over-all view of Chambers 10' Dry Pan with covers shows the accessibility and flexibility of Chambers' suspended design.

Below, right. (1) Tilted Ni-Hard screen plates give you real increases in productivity through their higher screening efficiency. Slower travel of the individual grains across the screens permits higher operating speeds and, hence, higher production. (2) Supporting arms of Ni-Hard screen plates are now steel, eliminating one more source of breakage. (3) The cake-breaking and deflecting plow, with its toothed Ni-Hard blade, is clearly shown in the center of the picture. Adjustment for vertical position, of course. (4) Muller yokes are now of solid steel, following our design philosophy that cast iron has no place in machines for brick, tile, sewer pipe, or refractories. (5) Clearly visible are our replaceable $\frac{5}{8}$"-thick steel curb-liner plates.

EASY CONVERTIBILITY

While productivity and performance naturally came first in our program, we knew that you, our customers, would give priority also to convertibility, either way, from rim-discharge grinder to dry pan, and back. So we made both machines completely convertible in your plant, if desirable.



Above, left. (1) Our complete re-designing program included spacing the mullers farther apart, thus increasing their rotational speed and, consequently, the speed of flow of material through the grinding process. (2) 16"-face, 5"-thick Ni-Hard muller tires are designed for quick replacement by means of double wedges and locking thru-bolts. (3) New 2-piece plow design for adjustment across the face of the muller to even out abrasion patterns, with a swivel feature for changing the contour and flow of material into the muller path. (4) Note in lower right-hand corner of photo separate Ni-Hard-faced steel plow for breaking up materials that tend to cake, and for deflecting them to the screen area. (5) Two heavy-duty air cylinders per muller match exact grinding pressures to material characteristics and moisture content at the turn of a valve. (6) Adjustable lubricators operate from a centralized system to inject exact quantities of grease required for muller roller bearings and for vertical shaft and muller yoke bushings.

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THIS MONTH'S COVER

William Carman, plant superintendent at the Gleason Clay Products Co., Gleason, Tenn., and John Herbert, president of W. G. Bush & Co., the parent company in Nashville, Tenn., inspect one of the burner ports in Gleason's new Harrop tunnel kiln. The story on this new plant is presented on page 40.

A CAHNERS PUBLICATION

Brick & Clay RECORD

Contents for May, 1961 • Vol. 138, No. 5

40 How They Operate at Gleason Clay Products

When W. G. Bush & Co., Nashville, Tenn., considered expansion, they turned to the western Tennessee area and started a plant at Gleason, Tenn., billed as the "Clay Mining Center of the World." Now the Gleason and Nashville operations complement each other. Our story covers the Gleason operation.

44 Clay Pipe—Challenge and Opportunity

The clay pipe industry faces new challenges and at the same time enjoys new opportunities. Read what executives of leading associations in the clay pipe field have to say about the present situation and future prospects of this industry. Next month the plant operators speak.

46 TRI Discusses Employee Grievances

Highlight of the 12th Factory Operators Meeting of The Refractories Institute was a discussion of refractory production problems and how to increase the operating efficiency of plant production personnel. The meeting took as its theme the proper handling of employee grievances and arbitration procedures.

48 Johns-Manville's Insulating Firebrick Are Different

Insulating firebrick made at the Johns-Manville plant at Zelienople, Pa., are different because J-M makes them by entirely different processes than the standard accepted methods. Probably the biggest deviation in the process is that the brick are cut out of fired slabs.

51 Use These Aggregates in Making Clay Block

A paper by Gil Robinson from the recent BRICK & CLAY RECORD Clay Block Conference which details the selection and handling of various aggregates in the manufacture of clay block.

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Leading Clay Journal of The World
Established 1892; Now in 69th Year

The magazine of brick, drain tile, structural tile, clay aggregate, terra cotta, roofing tile, refractories, clay pipe, and abrasives.

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CONTRACTS: Formal acceptance made only in Chicago.

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BRICK & CLAY RECORD is published monthly by Industrial Publications, Inc., 5 South Wabash Ave., Chicago 3, Ill. Second class postage paid at Chicago, Illinois and at additional mailing offices.

Subscriptions

U.S.A. and Canada, $5.00 for One Year; $10.00 for Three Years. Single Copies (current issue) 75 cents, foreign $1. Single copy rates for back issues, $1. Foreign Rates, $7 per year; three years, $15.

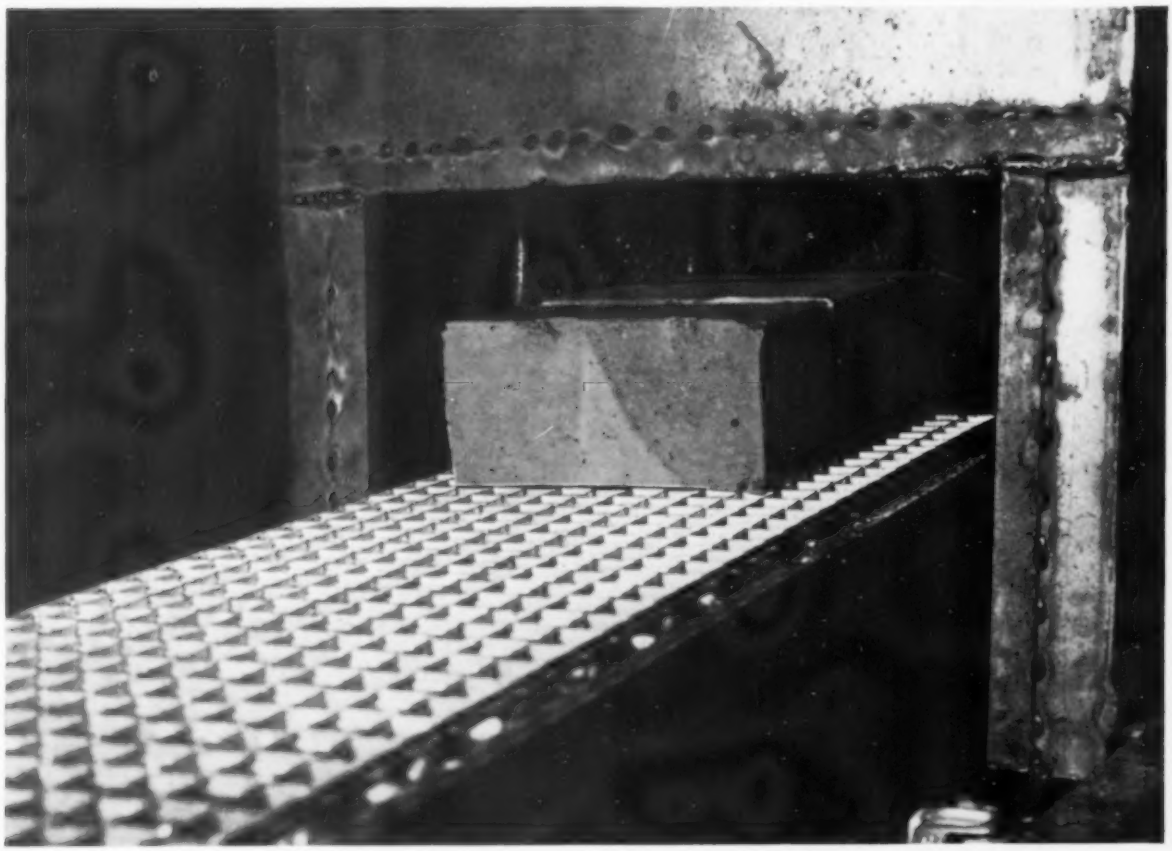
Subscription Renewals

Forward all mail, including subscription renewals, changes of address (including new zone number, old address) orders for subscriptions, undeliverable copies, etc. to BRICK & CLAY RECORD, 5 South Wabash Ave., Chicago 3, Ill. Printed in U.S.A.

Published monthly and copyrighted 1961 by Industrial Publications, Inc., subsidiary of Cahners Publishing Co., Inc., 5 S. Wabash Ave., Chicago 3, Ill., U.S.A. Norman L. Cahners, Chairman of the Board; Maurice P. Driscoll, President; F. L. Steinhoff, Exec. Vice President & Treasurer; Saul Goldweitz, Vice President; F. J. Amstadter, Secretary. BRICK AND CLAY RECORD is indexed by Engineering Index, Inc.

NEWS from Dow Corning

The Finishing Touch

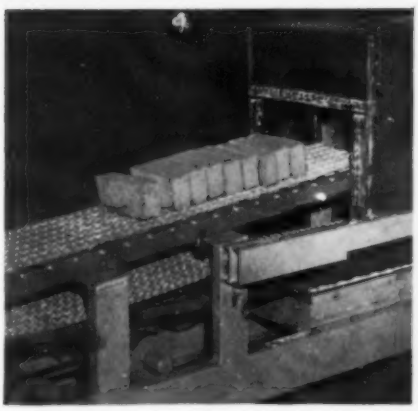


Easy, Low Cost Way to Give Your Brick New Sales Appeal

Here's a treatment that protects the original beauty of your brick — *builds in* some excellent new selling features. It's Silaneal®, a sodium siliconate treatment that makes brick water-repellent . . . minimizes efflorescence, keeps dirt on the surface where it rain-washes away. Result: Your brick stays clean in storage . . . beautiful during and after construction. And most important, your customers stay happy with your product!

Small Investment — Big Return

Silaneal treatment is inexpensive from every standpoint including equipment, labor and material cost. Most present users find Silaneal returns more than it costs — in fewer customer complaints, in reduced yard staining, lower selling costs and expanded markets.



Spray equipment for applying Silaneal specially designed by Dow Corning.

SILANEAL®
keeps brick clean

Dow Corning

...Silaneal keeps brick beautiful!

Structural Strength Affected?

No! And Silaneal is the *only* brick treating material proved safe in both field construction and SCPRF-prescribed wall tests. Photo at right shows wall test unit at work. These tests have proved that treating the bedding surfaces of brick with suction rates above 20 grams per minute improves wall strength, reduces rain penetration, and eliminates the need for wetting brick before lay-up.

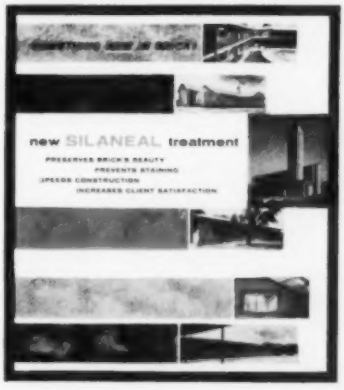
Do ALL Brick Need Silaneal?

In accordance with the recommendations of the SCPI, brick having an initial rate of absorption or suction greater than 20 grams per minute should have the suction reduced to 20 grams or less for maximum bond strength and minimum water penetration. Brick with a suction above 20 grams should have *all* surfaces treated with Silaneal. Brick having a suction *below* 20 grams should be treated on exposed faces but not on *bedding* surfaces.

Some low suction brick do not need Silaneal. Dow Corning repeatedly reminds architects and specification writers of this fact, with this statement: "There are several brick manufacturers who produce brick having low suction which already perform similar to a Silaneal treated brick. Little improvement in efflorescence control and reduction in dirt pickup could be accomplished by treating this type of brick with Silaneal. Silaneal treatment would not improve the laying properties of this type of brick."

Here's How Dow Corning Is Building Demand For Brick Treated With Silaneal

An industry-wide advertising and sales promotion program is carrying the Silaneal story to architects, builders, contractors and owners through a continuing series of big 2-page color advertisements in such leading publications as *Architectural Record, Progressive Architecture,* and *Building Construction Illustrated.*



Special sales aids for you: A full color descriptive movie is available at no charge for showing to your own personnel and prospects. Imprinted Silaneal literature and mailing pieces, and special "tell 'n sell" identification stickers for your sample panels and letterheads round out a promotion program that's creating a great and growing demand for *your* brick treated with Silaneal.

Get full information about Silaneal now. Phone or write today.

CORPORATION MIDLAND, MICHIGAN

SUSTAINING ASSOCIATE SCPI

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Hyster 2,000 and 2,500 lb. cushion tire lift trucks—industry's newest and finest.

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made from a superior raw material!

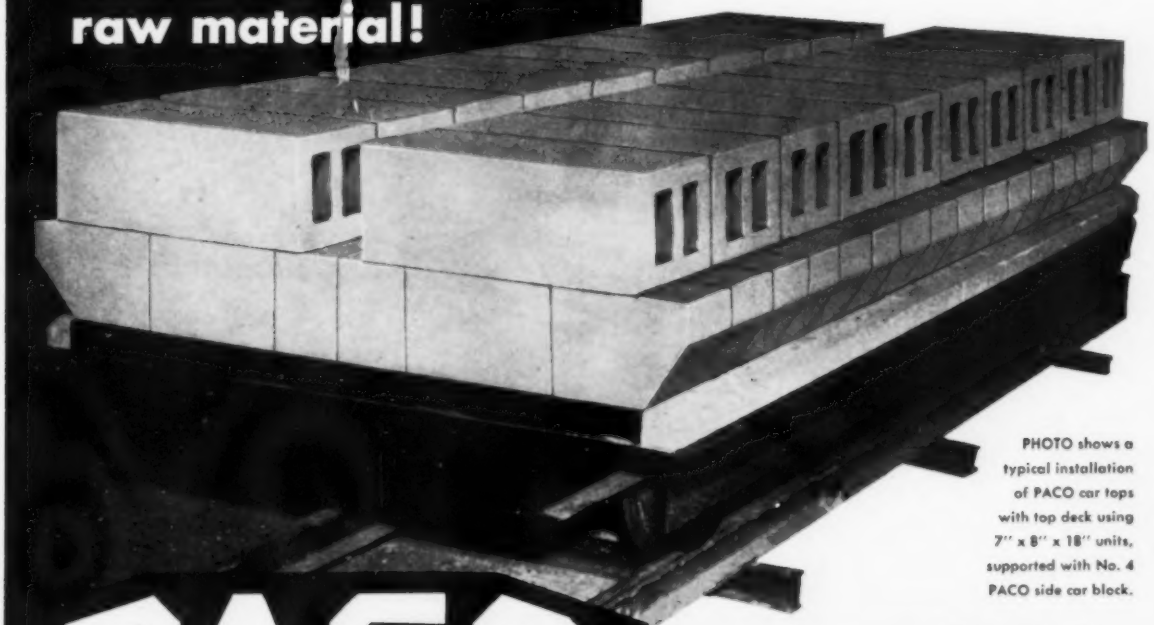
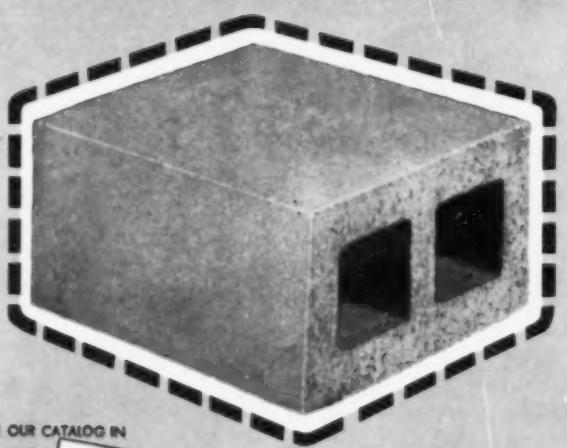


PHOTO shows a typical installation of PACO car tops with top deck using 7" x 8" x 18" units, supported with No. 4 PACO side car block.

PACO CAR TOPS

are made from the mineral pyrophyllite!



SEE OUR CATALOG IN Ceramic data book

Only PACO car tops are made from the mineral pyrophyllite. This is important because it can reduce your car top replacement costs by as much as 50%!

PACO car tops are stronger and highly resistant to thermal shock and hot load deformation. They do not soften below their actual fusion point. And, because PACO car tops are cored, the load heats faster and gases are more evenly distributed. The result is better, more efficient production—at less cost!

There is a PACO engineer as close as your telephone—or write for complete information!

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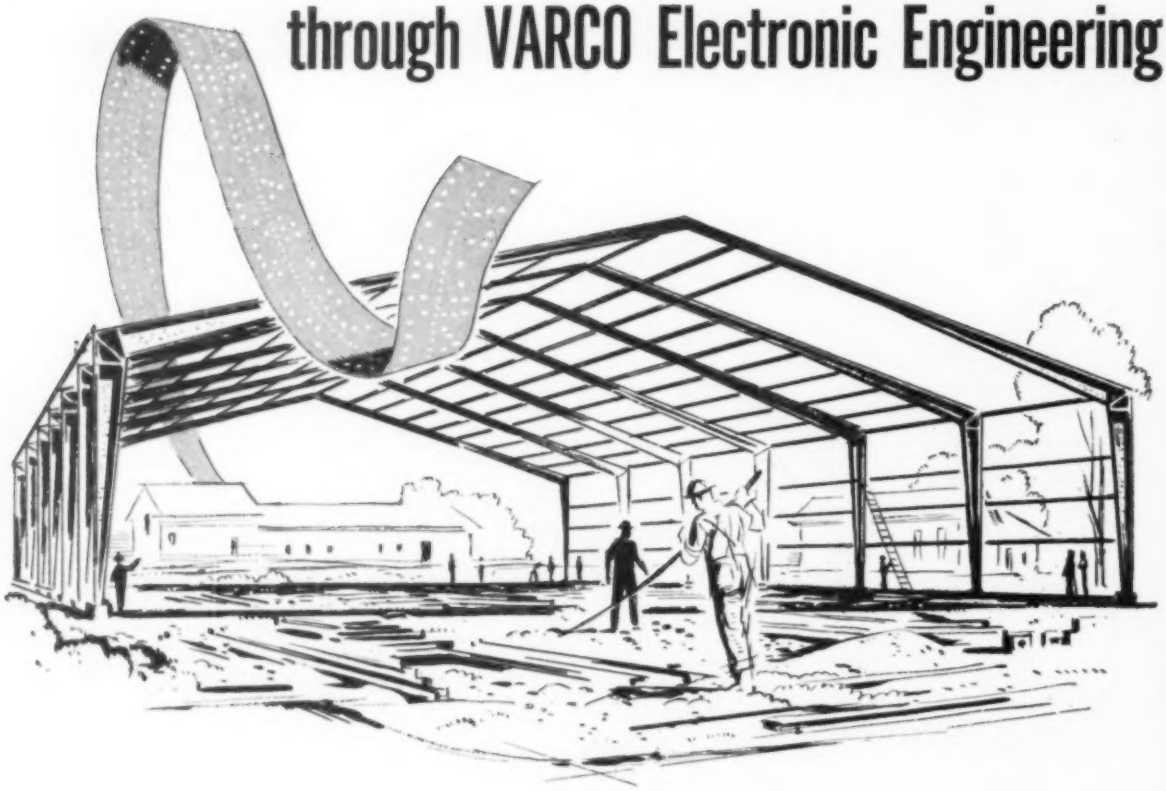

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Through use of an Electronic Computer, the time-lag between improved building design and manufacture has been cut drastically. You can be assured your Varco Uniframe Building will contain the latest innovations in steel frame construction.

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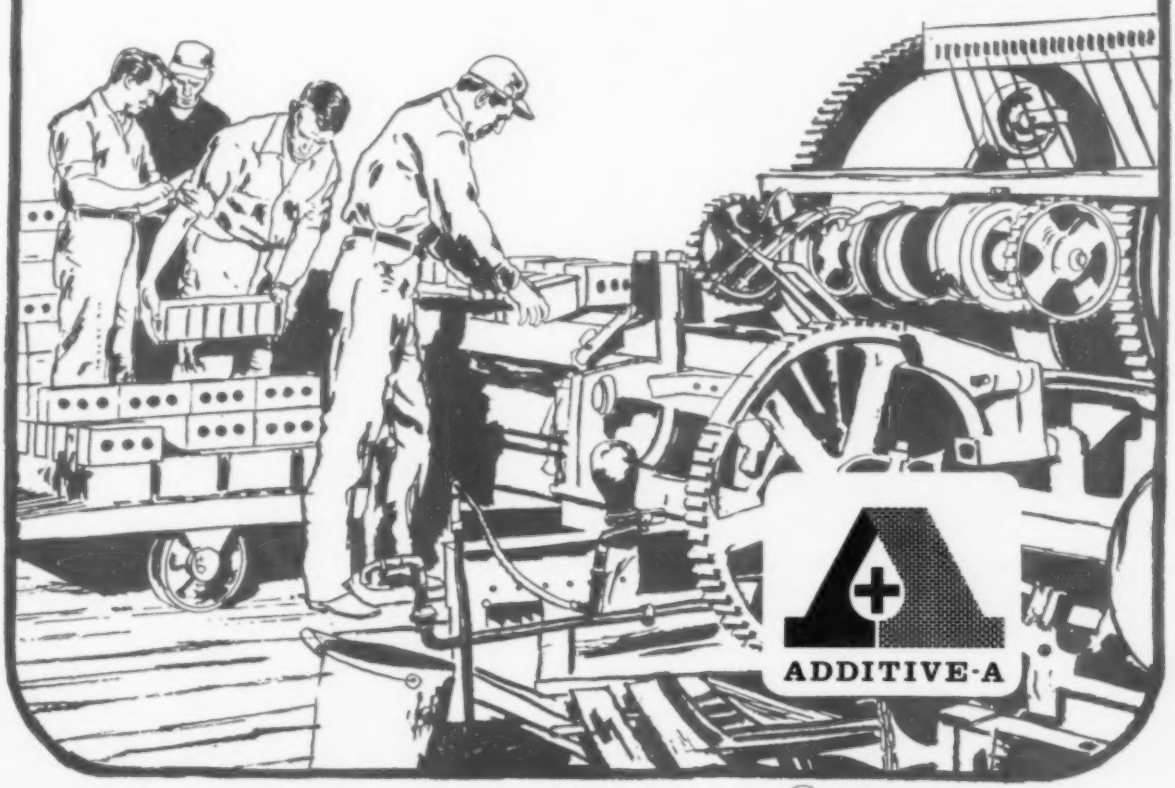
HOISINGTON, KANSAS — Mr. Ray Smith, president, Kansas Brick & Tile Co., Inc., of Hoisington, says: "We were the first Kansas plant to adopt full use of Additive-A clay conditioner. It permits us to give builders and home owners a better quality brick. Moreover, our dryer loss has greatly decreased, our power requirements for extruding have lowered, the green brick has taken on greater strength, the finished product is free of hair cracks and is better in every way. All this, thanks to Additive-A!"

For descriptive folder on Additive-A, write to: Dept. BCR-51 Chemical Products, Kimberly-Clark Corporation, Neenah, Wisconsin.



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AND
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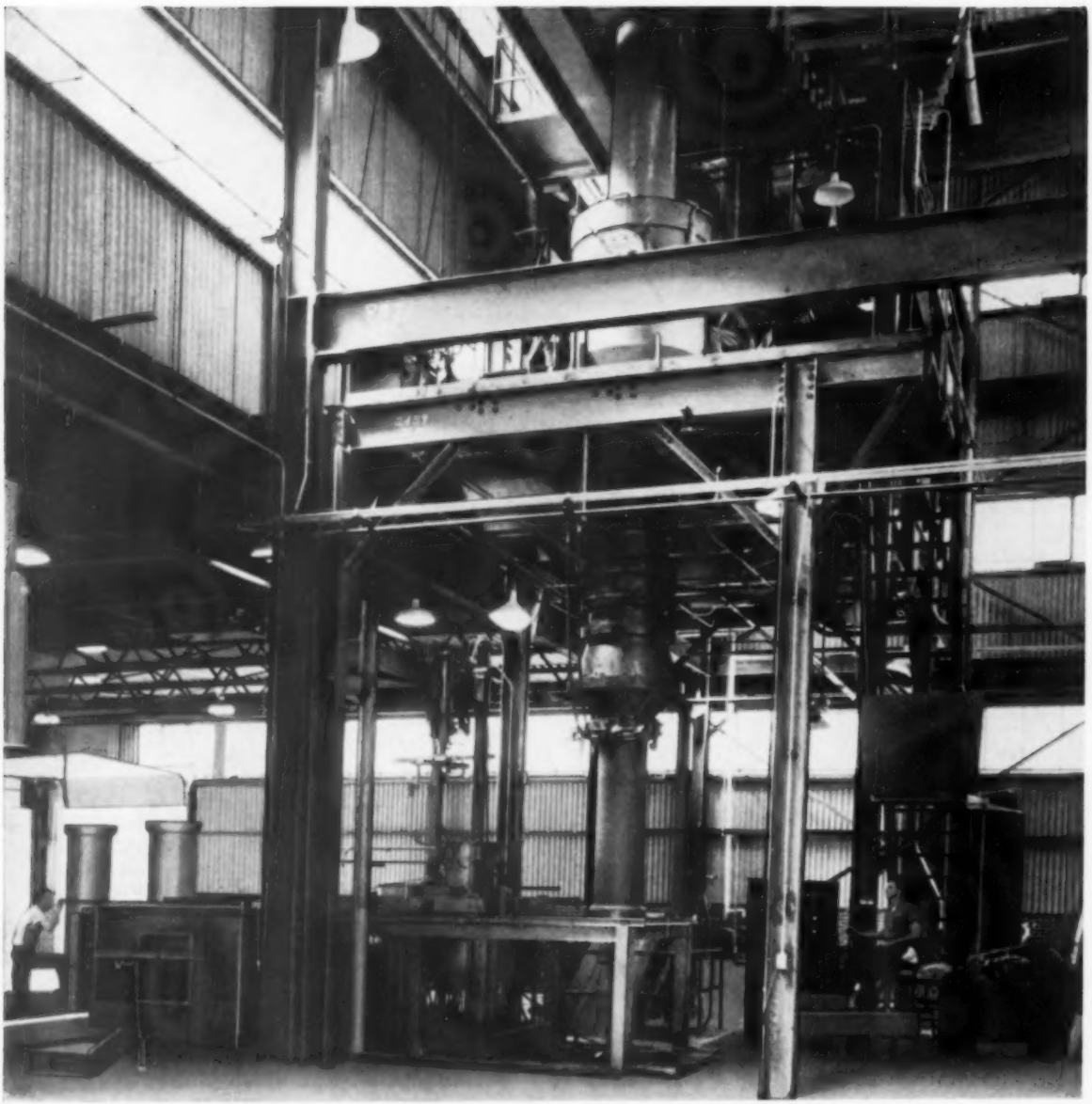

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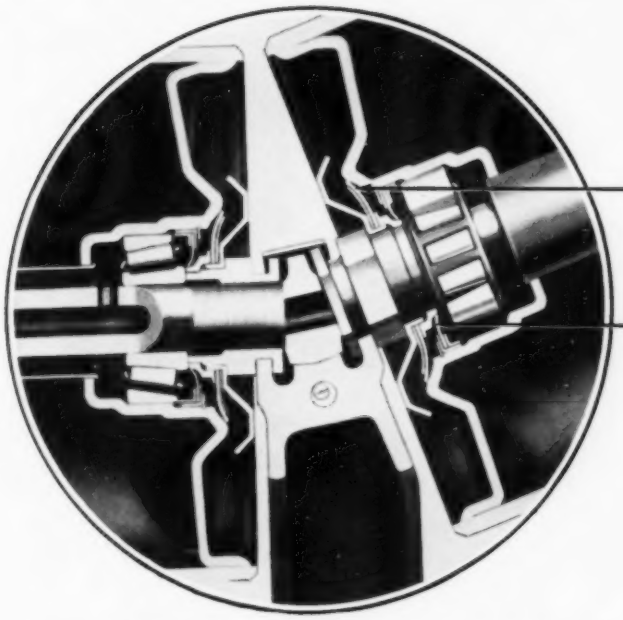
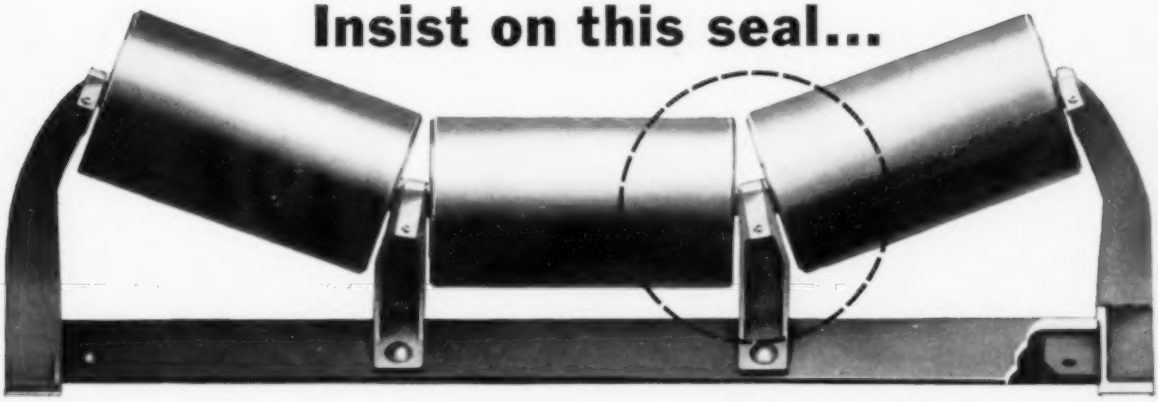


Insist on this seal...



you'll get longer idler service

HERE'S WHY. Jeffrey designed Permaseal belt idlers for extra-long service in severe applications with an absolute minimum of maintenance. They stay lubricated. Diaphragm *double* seals protect both ends of every roller. Inner seal keeps the grease in; outer seal keeps dirt out.

In addition to providing longer, more satisfying service, this positive sealing makes greasing easier when it is needed. You can add grease to either side of a Jeffrey Permaseal® Idler without danger that grease might escape through the other side onto conveyor belts. No grease pipes needed, either.

This extra assurance of satisfying performance through proper seal design is only one of the many reasons you get more dependability over a longer life from Jeffrey Permaseal Idlers. More extras are described in Bulletin 925A. Write for it today, or contact your nearest Jeffrey authorized distributor. The Jeffrey Manufacturing Company, 916 North Fourth Street, Columbus 16, Ohio.

If it's conveyed, processed or mined, it's a job for Jeffrey.

JEFFREY

Circle Service No. 19

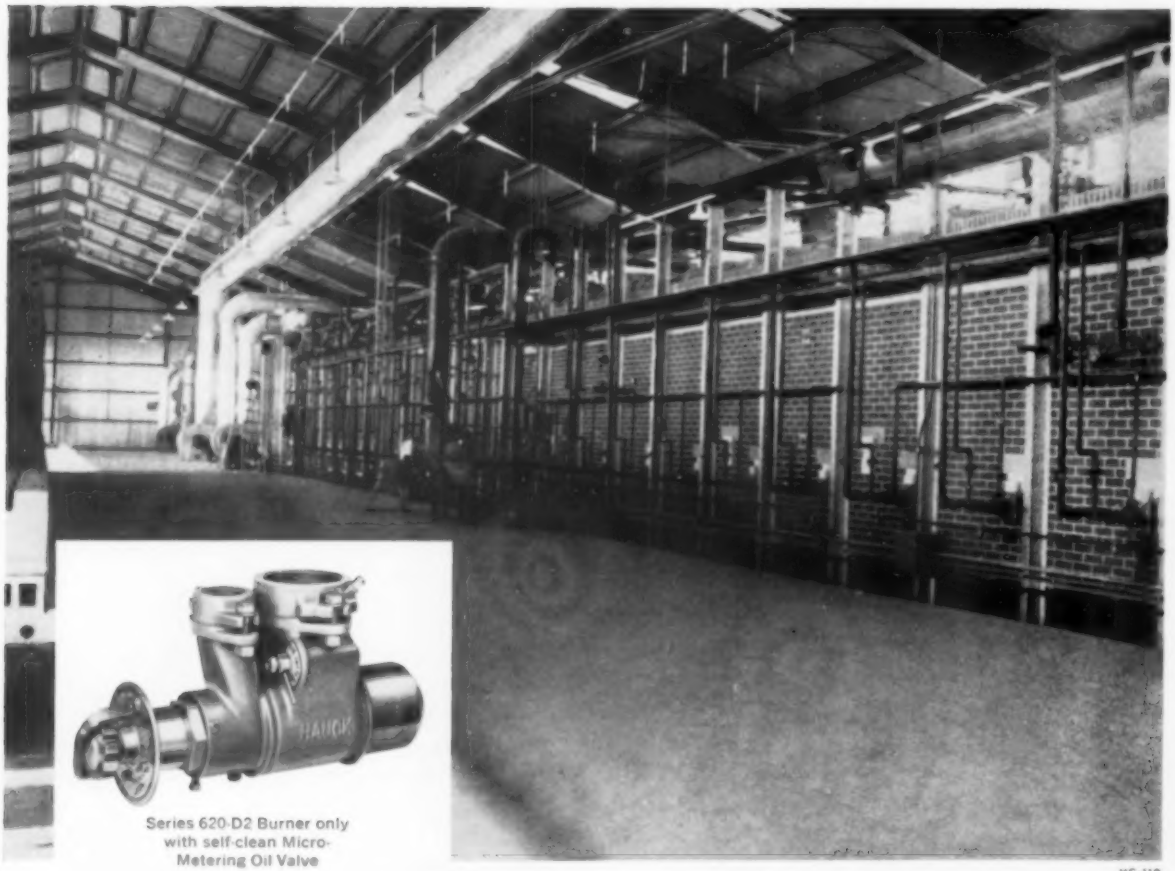
HAUCK keeps things hot at JENKINS BRICK COMPANY

Quality marks every step in production at the new Jenkins Brick Company plant in Montgomery, Alabama.

81 automatically controlled Hauck combination burners firing primarily on gas supply heat for the tunnel kiln. Specified because of their job proved ability to maintain proper temperatures under the heaviest work loads, Hauck burners deliver maximum heat outputs for minimum fuel inputs. Two versatile burner types are used in the kiln and can be instantaneously switched to oil firing in an emergency.

Engineered Hauck burners are ruggedly constructed for long service life and low operating cost. Easy to install, they burn any commercial fuel with top efficiency.

If quality control, low operating cost, sound combustion engineering counsel and on-the-spot field service have a place in your plans for new or change-over firing methods, Hauck Manufacturing Company can help you. Write for technical assistance and literature describing burners and engineered combustion equipment.



Series 620-D2 Burner only with self-clean Micro-Metering Oil Valve

HC-119

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Circle Service No. 21 ⟶

"Complete Control QUALITY·TEXTURE·COLOR Through the entire manufacturing process:"

Say the owners of
CALIFORNIA PRECISION CONCRETE BLOCK CO.,
La Puente, California
Lyle Kellog and Peter Sara

"This complete control feature has made it possible for us to produce – and sell – more than 2½ million 8" equivalents in less than 19 months of actual operation.

"To achieve this we needed dependable, high production machinery that would operate day-after-day with a minimum of maintenance—and so for our production units we chose a Columbia Model 10 coupled with a Columbia Automatic Loader and Unloader. This equipment has been more than satisfactory – blocks are uniform in size, strength and texture, with culls amounting to less than *'¼ of 1%.'*

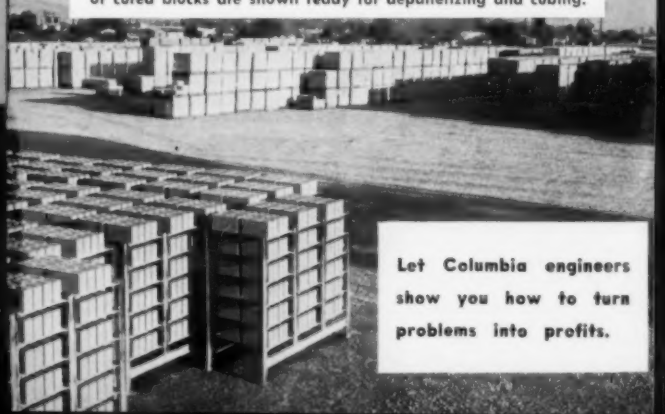
"In curing we use two low-pressure fully-automatic dual thermo-controlled boilers for saturated and superheated steam curing. Blocks made in this manner have excellent texture and color and show exceptionally high compression strength."

A crew of only *"4 men"* handle the entire daily production of this modern plant.

For additional information call your Columbia representative or write, phone or wire direct.

The modern and extremely efficient plant shown above is a marvel of compactness, as clean and sharp as the blocks it produces.

Below — a portion of the storage yard where approximately 500,000 blocks are stored while awaiting delivery. Loaded racks of cured blocks are shown ready for depalletizing and cubing.



Let Columbia engineers show you how to turn problems into profits.

Columbia MACHINE

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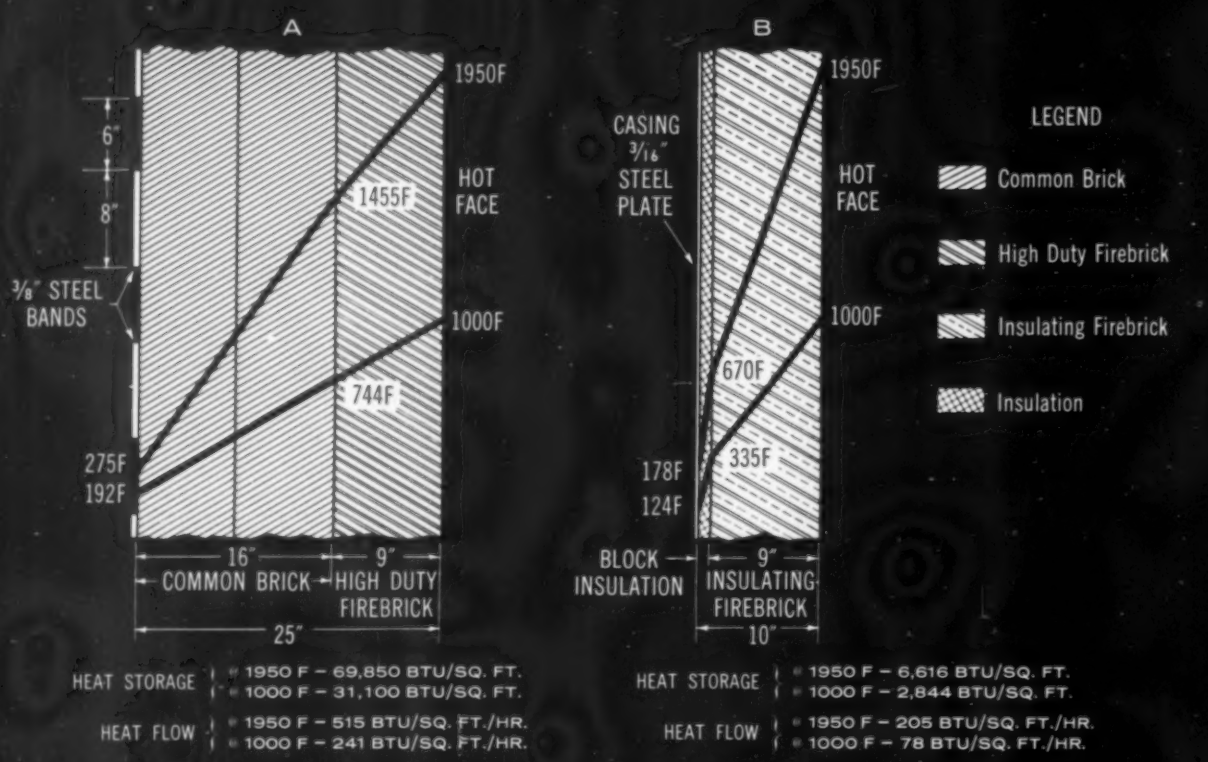
Manufacturers and world-wide distributors of a complete line of plant equipment for production of concrete products



Comparative Heat Storage and Heat Flow for Thick Kiln Wall vs Thin Kiln Wall Construction

FIGURE 1

A DESIGN THAT DELIVERS PROFITS

Modern, thin wall, insulating firebrick lined, steel cased kilns cut costs many ways. Here's how:

That sounds fine, but can I maintain an even kiln temperature while reducing total fuel input?

Yes, because an insulating firebrick lining possesses far greater sensitivity to temperature change. As a result, an IFB lined kiln provides faster response to changes in firing rate. Because of the low heat storage characteristics of an insulating firebrick lining, changes in the combustion rate are followed rapidly by changes in kiln temperature. The added heat input goes into the ware, not the wall. This rapid response means reduced firing time, less fuel consumed—more profitable operation.

You say that furnace output is increased also?

Yes. Taking the same example—comparing a 25" wall to a 10" wall in a typical 38' 2" radius kiln—the thin wall construction provides an additional 12.5% increase in floor area and offers increased kiln capacity and output.

What about the problem of culls? Does this design offer any improvement in product quality?

Another of the advantages of a steel cased B&W IFB lined kiln is tightness. A fully cased kiln provides a tight wall construction. There is no cold air leakage into the kiln—no cold spots in the kiln to adversely affect the ware under fire. A tight steel cased kiln permits the maintenance of a uniform temperature gradient from top to bottom of the kiln. The result is fewer burnovers, and increased profits.

I operate several periodics. Can you explain why cycle time is improved in IFB lined periodic type kilns?

The low heat storage properties of insulating firebrick reduce cycle time in periodic type kilns. The low quantity of heat stored by an insulating firebrick wall can be absorbed and dissipated much faster than the larger amount stored by a dense wall construction. This means that your kiln heats up and cools down faster. Our experience over the years has shown that you can reduce heating time from 10 to 20% with an insulating firebrick wall construction—and you can cool your kiln down as fast as the ware will permit.

With faster cooling, the kiln must be more comfortable to work in. Is this true?

Another benefit provided by the thin wall, insulating firebrick lined kiln is improved working condition. The faster cooling time made possible only with a lightweight B&W Insulating Firebrick lining means improved worker comfort—increased production—greater return for your labor dollar.

What are the basic economies of thin wall, steel cased kilns?

One of the most significant developments to come forth in the last 15 years in the structural clay products industry is the thin wall, steel cased, insulating firebrick lined kiln. Note the difference in wall thickness shown in Figure 1. Offering the combined savings of reduced capital investment and lower operating costs, this new design increases production and profits. Thin wall IFB lined kilns provide the following benefits to the kiln operator:

1. **Reduced capital investment as installed**
2. **Reduced fuel costs**
3. **Faster response to changes in firing rate**
4. **Improved product quality**
5. **Reduced cycle time in periodic type kilns**
6. **Improved working conditions**

The following discussion provides the answers to many of the questions B&W has been asked about the money-saving, profit-building potential of this design.

How can a thin wall insulating firebrick lined kiln reduce my capital outlay?

One of the most notable advantages of thin wall insulating firebrick lined kilns is the savings in total capital investment. Total capital investment is dependent on (1) material costs, and (2) construction costs. Let's examine both. Figure 2 gives a typical evaluation of the total capital outlay for both constructions. Note that this comparison does not include the additional savings in reduced foundation costs that result from the lower weight of the kiln.

While an evaluation of this type will vary from kiln to kiln, depending on such factors as plant location, source of supply, etc., you can see that total costs will favor the thin wall, steel cased IFB construction.

I notice that you keep emphasizing that this is a thin wall construction. Why?

In Figure 1, we have compared two wall constructions that might be found in typical kilns. In one construction—labeled "A"—are 9 inches of dense firebrick, backed up with two 8 inch courses of red or common brick—a *total wall thickness of 25 inches*. This type of construction requires the use of steel bands for sidewall support.

The steel cased, insulating firebrick lined kiln—construction "B"—has a 3/16 inch steel casing around the kiln for the full height of the sidewall. The lining is 9 inches of IFB, generally with a use limit of 2000F, backed up with 1 inch of block insulation or insulating refractory castable—*a total wall thickness of 10 inches*.

This difference in wall thickness means a 66% reduction in brick laying time, alone.

How can operating costs be reduced?

Another major advantage provided by the thin wall, insulating firebrick lined kiln is reduced fuel costs. As seen in Figure 1, the steel cased construction—construction "B"—provides a lower outside wall temperature for a given hot face condition than does construction "A"—and it is 15 inches thinner! There is only one reason why—the insulating firebrick lining. Insulating firebrick are light in weight—they conduct less heat. This light weight results from the porous structure of insulating firebrick—porosity designed and built into the brick. Each of the tiny pores in an insulating firebrick acts as a barrier to the flow of heat. In Figure 1, the IFB construction conducts less than half as much heat through the wall. The fuel you burn heats the kiln, not the atmosphere around the kiln. Instead of paying fuel bills to heat your yard, you pay only to heat the kiln.

Approximate Cost Analysis of Heavy Brick vs. Insulating Firebrick Kiln Wall Construction

MATERIAL	UNIT PRICE DELIVERED	PRICE—DOLLARS PER SQ. FT.	
		CASE A	CASE B
HIGH DUTY FIREBRICK.....	$150/M	$1.92	$ —
FACE BRICK.....	50/M	1.80	—
MORTAR (FIRECLAY).....	40/NT	.20	—
STEEL BANDS (INSTALLED).....	.....	1.98	—
2000° INSULATING FIREBRICK...	205/M	—	2.62
MORTAR (AIR SETTING).....	145/NT	—	.19
STEEL SHELL (INSTALLED).....	.....	—	1.95
1"-1600° BLOCK INSULATION (INSTALLED).....	.....	—	.58
LABOR.....	100/M	4.88	1.28
TOTALS		$10.78	$6.62

Case A—Walls=9" High Duty Firebrick +16" Facebrick Banded by ⅜" x 6" Steel Bands and Turn Buckles

Case B—Wall=9"-2000° Insulating Firebrick + 1"-1600° Block Insulation + 3/16" Steel Casing

FIGURE 2

That's fine, but are these fuel savings significant enough to worry about?

Definitely. Lightweight not only means lower heat flow—it also means lower heat storage. In Figure 1, the lightweight insulating firebrick lining of the steel cased kiln stores 90% less heat than the dense, heavy wall of construction "A" for a hot face condition of 1950F. This means that to bring the ware in your kiln to a given temperature, you burn less fuel. Why? Because you are putting up to 90% less heat in the walls! Scores of case history studies have proved that B&W Insulating Firebrick save an average of 20-25% in fuel costs.

For further information, write The Babcock & Wilcox Company, Refractories Division, 161 East 42nd Street, New York 17, N. Y.

R-634

B&W

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Circle Service No. 22

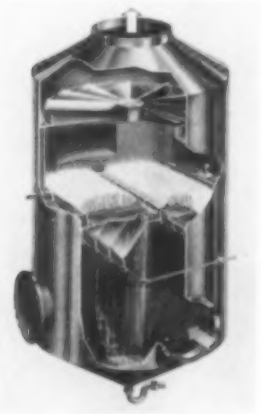
MATERIALS & EQUIPMENT IN THE NEWS

Block Machine

This firm has announced a fully automatic, plain pallet, block-making machine which functions by synchronized, independent motorized unit drives. All drive units and control adjustments are readily accessible. No special tools are required to make any adjustments. All standard size block units are possible with this machine. *Stearns Mfg. Co.*

Circle Service No. 69

Scrubbers



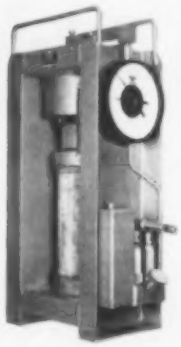
This firm has announced its new line of impingement-plate-type scrubbers for wet cleaning, absorption or cooling of gases resulting from industrial processes.

Because of the simple design, pressure drop and resulting power requirements are low. *W. W. Sly Mfg. Co.*

Circle Service No. 70

Testing Machine

A new addition to the line of this company's testing machine is this model FT-10 "Jobsiter" a portable type machine for testing cylinders, blocks, brick, cubes and beams. Of rugged all welded construction, and 250,000 lbs load rating it is claimed to be priced lower than any previous model.

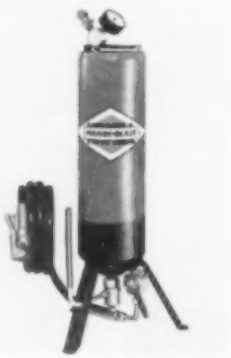


Weighing only 365 lbs, this tester can be easily carried in the trunk of a passenger car, and for permanent location a provision is made for bolting it down. *Forney's Inc.*

Circle Service No. 71

Portable Sandblaster

A completely new portable sandblaster (Model 28A) was recently announced and is now being marketed nationally by this firm. This sandblaster will quickly clean mortar, cement, or dried paint from brick or other masonry.



The unit is only 29" high and has a tank diameter of 6". The weight of the unit is 24 lbs. empty and has an abrasive capacity of 28 lbs. sand. *Hamill Mfg. Co.*

Circle Service No. 72

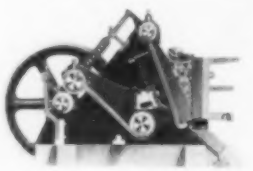
Block Turner

This company has started manufacturing of a new piece of equipment for plant operators. Called the Star Turnover, it is designed to automatically turn blocks onto their sides for cubing.

The turnover replaces, or may be used in conjunction with belt conveyors customarily used in offbearing. It will turn blocks in any sequence necessary to form any cubing pattern desired. *Columbia Machine.*

Circle Service No. 73

Fine Crusher



In response to the increasing demand for a machine that will reduce rock and other material from quarried sizes to grades impossible to secure with existing crushers this firm has introduced a new fine crusher, with special jaws for fine crushing, to its line.

This new crusher is available in a wide range of sizes and crushing characteristics. *Universal Road Machinery Co.*

Circle Service No. 74

Electric Tube Furnace

An electric combustion tube furnace incorporating a new type of power control has been announced. The tube furnace, which produces 2600°F. max., is the Model SC-32. It provides a 12-inch uniform heat zone in a 2½-inch o.d. ceramic tube, and is rated at 7 kw on 220/1/60 vac.

The new power control, called Thermionik Power System, uses thyratron electronic tubes. The thyratrons replace conventional contractors and saturable reactors, and are said to allow greater accuracy of temperature control.

This new model is available with automatic indicating-type controls and mounts for customer-specified 2 to 4-inch o.d. tubes. It is also available as a muffle-type. *Despatch Oven Co.*

Circle Service No. 75

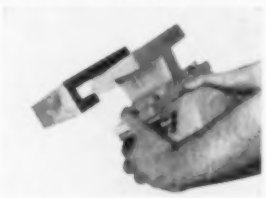
Portable Blower

An all-aluminum portable blower, weighing only 70 lbs. and delivering up to 6500 cu. ft. of air a minute, is now be-offered by this company.

It is powered by a 1½ hp motor and supplied either with 220-440 volt A.C., or 110-230 volt A.C. or D.C. wiring. Overall dimensions are: length 21-⅛"; height, 21"; width 20¾", and air duct 18". *Manhattan Electric and Maintenance Co.*

Circle Service No. 76

Detachable Vibrator



This company has announced a new portable light duty electric vibrator for moving materials from bins, hoppers and trucks. Similar in mounting characteristics to railroad car vibrators, the RC-5 LSRR attaches with a cast iron wedge and bracket to permit dismounting. *Cleveland Vibrator Co.*

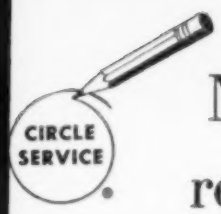
Circle Service No. 77

Sieve Shaker

A new model field and laboratory sieve shaker has been introduced by this firm. The new shaker features a two dimensional shaking action which develops a circular motion plus six impacts per cycle to the test sieves.

The light weight of the new shaker permits easy portability.

(*Continued on page* 21)



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8	23	38	53	68	83	98	113	128	143	158	173	188	203	218
9	24	39	54	69	84	99	114	129	144	159	174	189	204	219
10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
15	30	45	60	75	90	105	120	135	150	165	180	195	210	225

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5	20	35	50	65	80	95	110	125	140	155	170	185	200	215
6	21	36	51	66	81	96	111	126	141	156	171	186	201	216
7	22	37	52	67	82	97	112	127	142	157	172	187	202	217
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10	25	40	55	70	85	100	115	130	145	160	175	190	205	220
11	26	41	56	71	86	101	116	131	146	161	176	191	206	221
12	27	42	57	72	87	102	117	132	147	162	177	192	207	222
13	28	43	58	73	88	103	118	133	148	163	178	193	208	223
14	29	44	59	74	89	104	119	134	149	164	179	194	209	224
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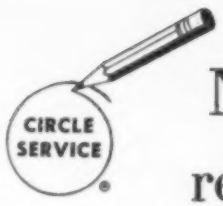

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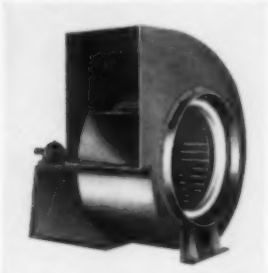
No permanent installation is required. The base of the shaker is 14 by 23 inches and the unit is 35 inches high. *Soiltest, Inc.*

Circle Service No. 78

Curved Fans

This company has announced a new line of forward curved centrifugal fans for heavy-duty industrial service. The compact units are particularly well suited for systems having limited space or low noise level requirements.



The forward curved fans are produced in two basic models for a variety of industrial ventilating and high temperature applications: one model for 300°F maximum operating temperature; and the other for handling hot air or gases to 2000°F. Units are designed for direct installation in furnaces, ovens, kilns and dryers, without external ductwork. *Garden City Fan & Blower Co.*

Circle Service No. 79

Car-Bottom Kiln

Those doing quantity firing of small ceramic, electronic, or ferrite parts will find the recently announced electrically heated car-bottom kiln of special interest.

The manufacturer reports that this model is suitable to all normal air operations up to and including 2500°F (2700°F available). *The Pereny Equip. Co.*

Circle Service No. 80

Dragline-Clamshell

A diesel-electric dragline and clamshell has been added to this company's line of heavy-duty crawler excavators. It is claimed by the manufacturer that the new machine, with boom lengths of 100, 120 and 140 feet, can handle buckets up to 10 cubic yards.

Designed for high production and low maintenance, a key feature of this model is the elimination of friction clutches for all cyclic functions. Hoist and drag or holding and closing motions are regulated by a static type control of independent electric eddy current clutches, which are liquid cooled by the radiator system.

Three sets of crawlers are available-standard, intermediate and long-wide for soft ground conditions. *Bucyrus-Erie Co.*

Circle Service No. 81

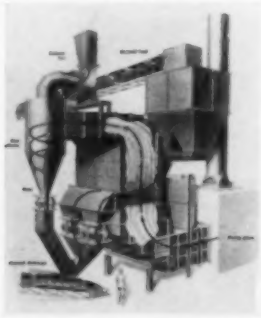
Hydro-Boom

A new counterbalanced mobile floor crane that will cut labor by 50% and allow for greater handling capacity has been introduced by this firm.

The lifting capacity of this new boom is 3000 lbs with the hook 48" beyond the front edge of the platform. *Vanguard Mfg. Co.*

Circle Service No. 82

Fluid-Flo-Dryers



This firm has announced the availability of their Fluid-Flo dryer for processing granular solids with a minimum of product loss or degradation. The new unit can be applied in many industries that have granular solids processing needs. In addition to drying applications Fluid-Flo can also be modified for use in cooling or roasting operations. *Link-Belt Co.*

Circle Service No. 84

Spiral-Flame Burners

This firm's spiral-flame burners create a flat, spiral flame which hugs the arch and/or walls of kilns.

Six sizes of spiral-burners provide capacities from 100,000 to 180,000 Btu/hr. Flame diameters range from 13" to 60". Burners are factory assembled, tested, and shipped complete with high temperature combustion block. *Eclipse Fuel Eng. Co.*

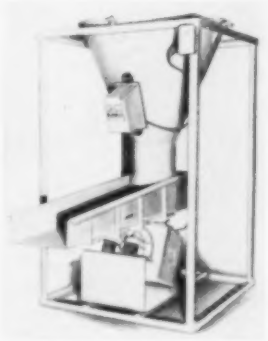
Circle Service No. 83

Dry-Type Air Filter

A new dry-type air filter has been introduced by this company. It is claimed that this new filter provides air cleaning efficiencies as high as 97%, based on the National Bureau of Standards Dust Spot Method on Atmospheric Dust and is ideal for use in industrial and commercial ventilating systems, or in central air conditioning systems. *American Air Filter Co., Inc.*

Circle Service No. 85

Volumatic Feeder



It is claimed that precisely measured delivery of dry bulk material is assured by this volumatic feeder machine introduced by this company. It has been designed for small batch operations, packaging and bagging operations, weigh scales and for use where additive feeding is performed continuously or intermittently. *Eriez Mfg. Co.*

Circle Service No. 86

Bulk Density Gauge

The Model 502 series of bulk density gauges is designed to measure and control the bulk density of solid materials. The measuring head is located directly over material on a conveyor belt. The electronics and recorder/controller can be located at a distance from the head.

A scraper bar in the unit is used to rough-level the conveyored material before it is measured.

The measuring head is also available as a long cylindrical probe which can be inserted directly into the contents of a bin or hopper. *Nuclear-Chicago*

Circle Service No. 87

NEW LITERATURE

Variable Drives—A new 12-page variable speed catalog featuring the company's line of exclusive "lube-free" integral and fractional horsepower variable speed drives is available. *Sterling Electric Motors, Inc.*

Circle Service No. 88

Mechanical Air Separators—Complete information and data on the company's line of mechanical air separators. (Bulletin 90). *Combustion Engineering, Inc.*

Circle Service No. 89

Scanning Pyrometer—A new 4-page data sheet describing the company's new pivoting pyrometer system is now available. (Process Data Sheet 705 (3)). *Leeds & Northrup Co.*

Circle Service No. 90

Pneumatic Instrumentation—A 16-page bulletin which explains how drive speeds of machines and processes can be automatically controlled and regulated by simple pneumatic instrumentation. (Bulletin G-2500) *Reliance Electric and Engineering Co.*

Circle Service No. 91

Lift-Truck—Basic specifications are shown for 13 standard models in this company's line of lift trucks. *Automatic Transportation Co.*

Circle Service No. 92

Insulating Firebrick—16-page illustrated bulletin describes the benefits derived from using the company's line of insulating firebrick. (Bulletin R-44) *Babcock & Wilcox Co.*

Circle Service No. 93

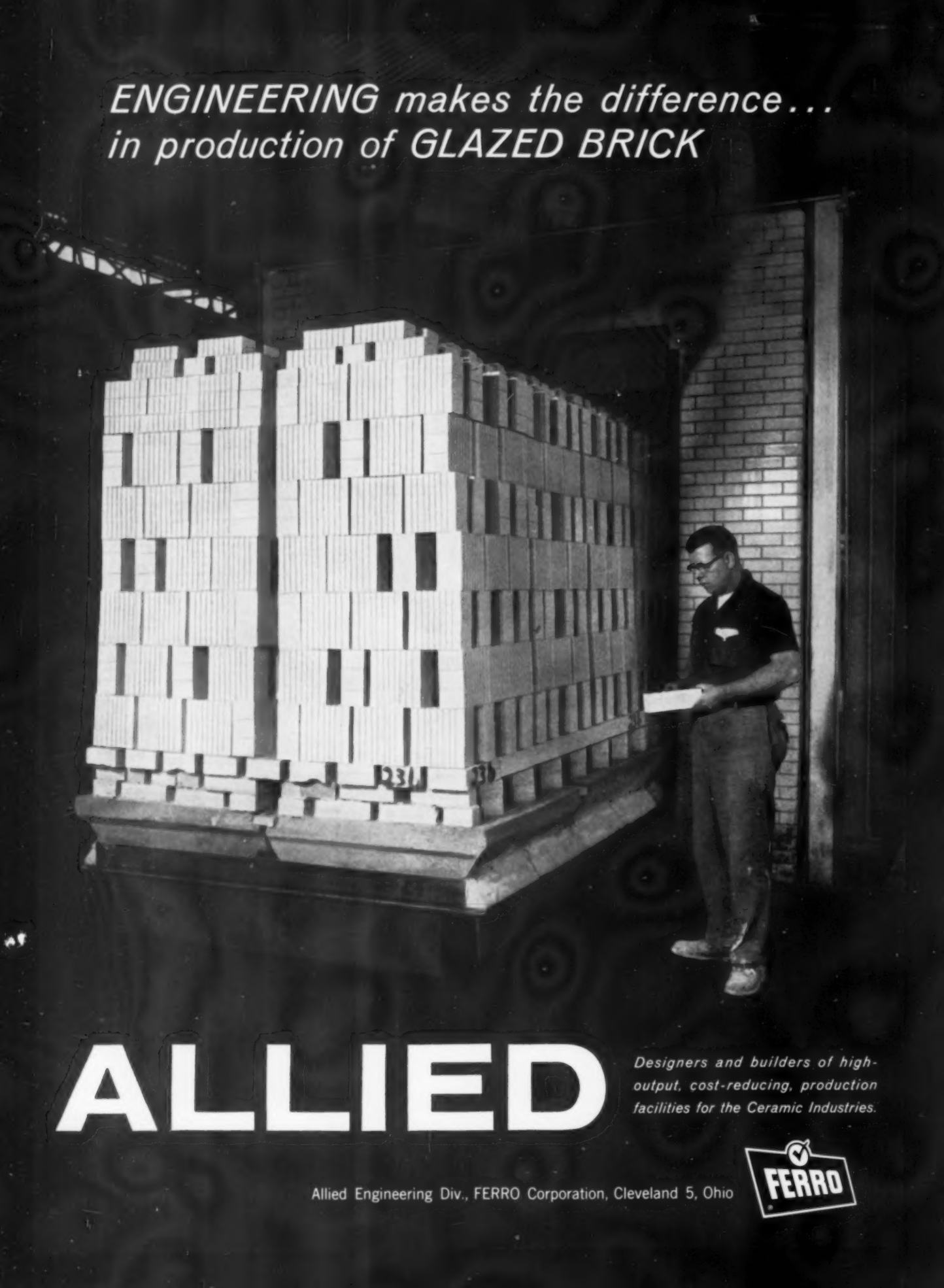
Bucket Elevators—A new 84-page manual is designed to simplify the selection and application of bucket elevator systems to many material handling problems. *Webster Mfg. Co.*

Circle Service No. 94

Testing Sieve—Complete technical data on all types of testing sieves. (Bulletin F-S-61) *Newark Wire Cloth Co.*

Circle Service No. 95

ENGINEERING makes the difference...
in production of GLAZED BRICK



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Allied Engineering Div., FERRO Corporation, Cleveland 5, Ohio

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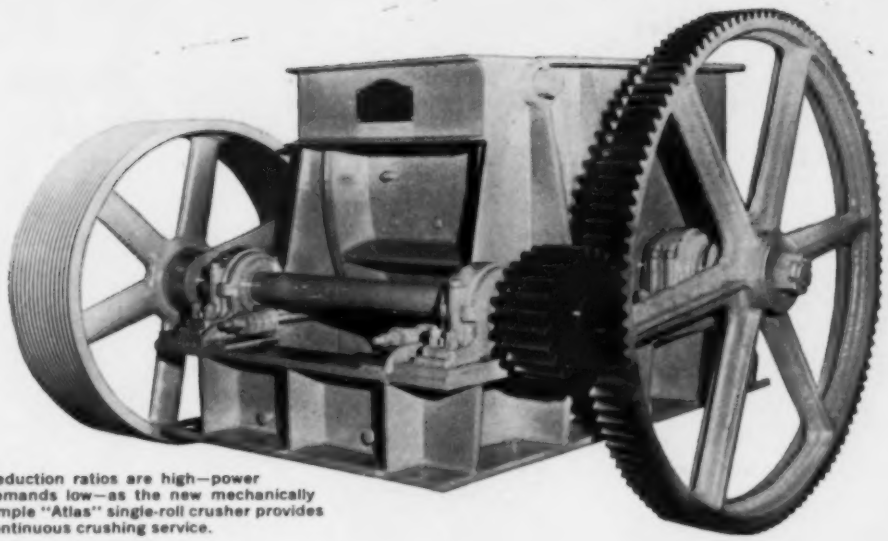

Reduction ratios are high—power demands low—as the new mechanically simple "Atlas" single-roll crusher provides continuous crushing service.

NEW! PENNSYLVANIA "ATLAS" CRUSHER

offers economical, efficient reduction of shale, soft gypsum, soft limestone, chemicals, etc.

This new "Atlas" crusher is job-engineered for *economy*, *performance*, *capacity*—on crushing a variety of materials demanding machine ruggedness somewhat less than required in other crushing operations.

These are compact, powerful, single-roll machines that will give years of trouble-free crushing service at a cost of a fraction of a cent per ton. "Atlas" crushers fit well into production lines. They are built for continuous crushing, and can be started or stopped at any time.

Basically a primary crusher, with its 18, 24 or 30-inch roll diameters handling feeds of 14, 20 and 26 inches respectively, the "Atlas" also serves under many conditions as a secondary crusher.

CHECK THESE FEATURES

Low headroom requirements • Compact • Economical • Large capacity • Continuous crushing • Minimum of fines • Low power demand • Large receiving hopper • Minimum attention • One-pass, non-clog crushing • Wide range of size adjustment

With the addition of this new "Atlas", Pennsylvania now offers the widest range of single-roll crushers in the industry—permitting precise job-engineering of the exact machine for each application.

FREE BULLETIN

Full information and operating details on "Atlas" crushers are described in new Bulletin 2025. Send for a free copy today.

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Over 50 years concentrated experience in all types of material reduction makes Pennsylvania your best source of crushers and engineering advice and service. Call on Pennsylvania with your next crushing problem. Representatives from coast-to-coast and abroad.

PENNSYLVANIA CRUSHERS

BATH-BUILT

Circle Service No. 25

←—Circle Service No. 24

"Any one of our UNIT ¾-yd. shovels very easily loads 600 tons of clay per day from the solid", says Ralph Veon, President, RALPH A. VEON, Inc., Darlington, Pa.

7 UNITS

in eleven years for Pennsylvania Stripping Contractor

Since 1949 Mr. Veon has used UNIT shovels for contract stripping of fire clay. He now owns seven of them — five ¾-yd. machines, like the Model 1020A shown here, and two ½-yd rigs. "We find these machines very maneuverable and easy to operate," he reports. "Our cost of maintenance has been satisfactory for the past eleven years."

UNITS are easy on the pocketbook because they combine power with design simplicity. With UNIT direct in-line drive from engine to main machinery, you get ample power for heaping loads on every pass. There's no separate right angle gear reducer . . . no wasted horsepower. UNIT one-piece cast main machinery gear case design, with all gears, shafts, and bearings completely enclosed and operating in an oil bath, provides positive protection against wear . . . assures longer machine life.

All operating clutches are disc type. Engaging pressure is uniformly distributed for maximum length of service from each friction surface. Involute splined shafts are used throughout to provide greater strength and less wear. Gears, worms, turntable rollers and many other parts are drop forged to withstand greater stresses under toughest job conditions.

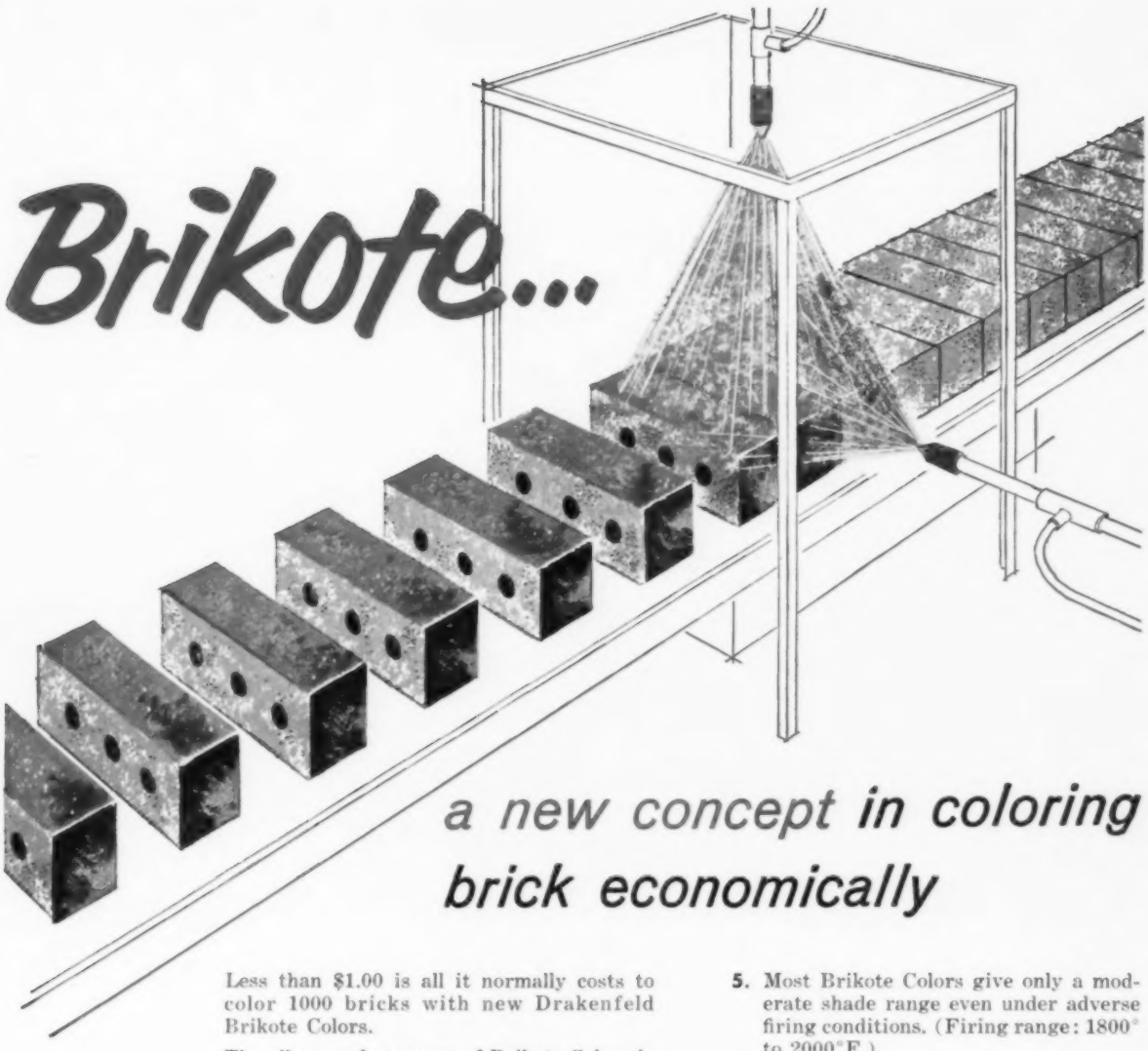
UNIT shovels and draglines are available in ½-, ⅝-, and ¾-yd. sizes. See your UNIT dealer soon to get complete information on the size you need.

UNIT

UNIT CRANE & SHOVEL CORP.
6649 W. Burnham Street
Milwaukee 19, Wisconsin

Circle Service No. 26

Brikote...



a new concept in coloring brick economically

Less than $1.00 is all it normally costs to color 1000 bricks with new Drakenfeld Brikote Colors.

The all-around economy of Brikote Colors is due to these important characteristics:

1. Exceptional opacity and coverage.
2. A very thin coat is adequate and does not alter the brick texture.
3. The colors suspend readily in water to insure even dispersal when sprayed. They are supplied in wet form, ready to spray.
4. Coated brick may be face set and fired immediately without danger of sticking.
5. Most Brikote Colors give only a moderate shade range even under adverse firing conditions. (Firing range: 1800° to 2000°F.)
6. A blend of various colored brick can be run by simply changing the color intermittently at the spray machine. With a proper spray gun battery setup, such blending operations do not hamper production speed.

Brikote Colors in traditional brick colors are augmented by new shades in the complete line. Matches are also available for manganese flash and zinc flash. Write for complete information or ask for on-the-spot cooperation from one of our field engineers.

CALL ON Drakenfeld — *YOUR PARTNER IN SOLVING COLOR PROBLEMS*

B. F. DRAKENFELD & CO., INC.

Executive Offices: **45 Park Place, New York 7, N. Y.**

Factory and Research Center: **Washington, Pa.**

Pacific Coast Agents:

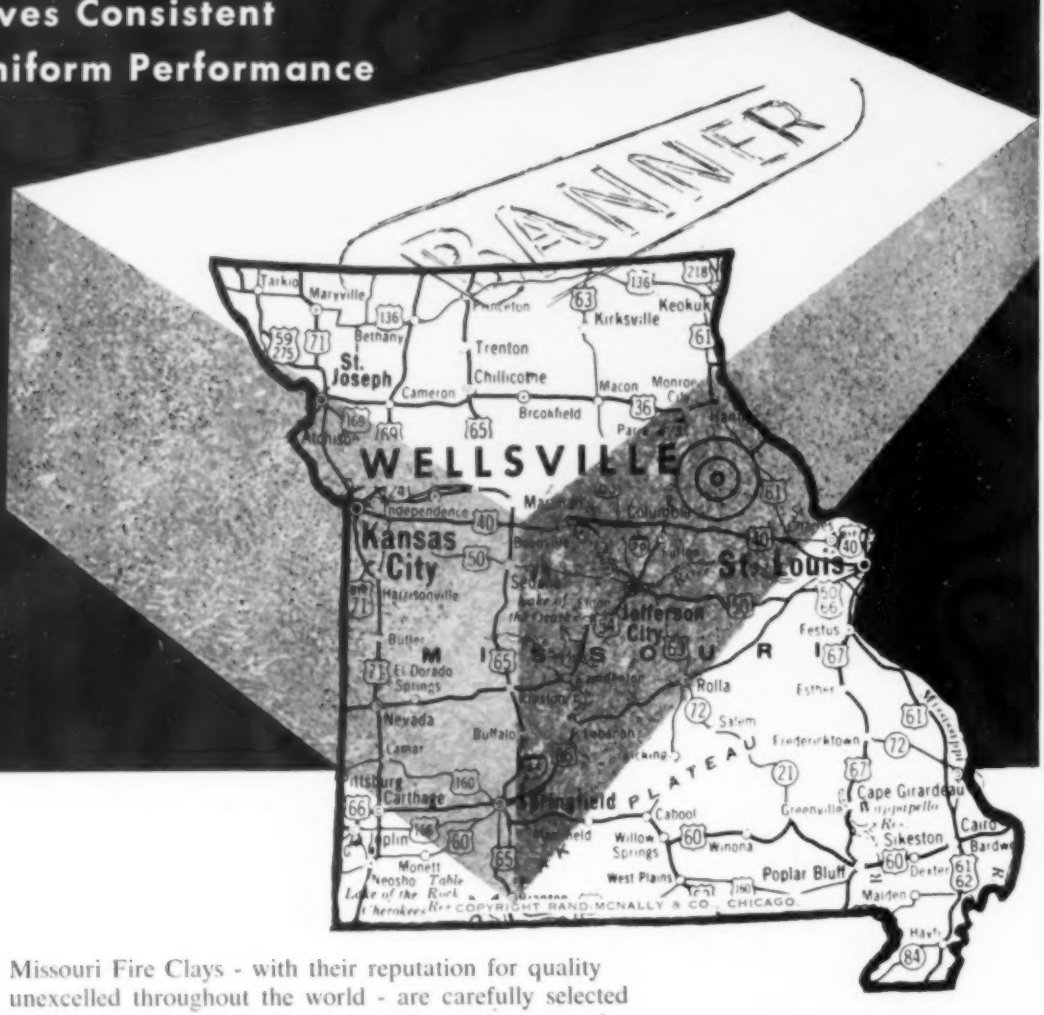
BRAUN CHEMICAL COMPANY, 1363 So. Bonnie Beach Place, LOS ANGELES 54, California, Phone ANgelus 9-9311

BRAUN-KNECHT-HEIMANN COMPANY, 1400 Sixteenth Street, SAN FRANCISCO 19, California, Phone: HEmlock 1-8800

SCPI

Circle Service No. 27

Made from Select Missouri Fire Clays
WELLSVILLE FIRE BRICK
gives Consistent Uniform Performance



Missouri Fire Clays - with their reputation for quality unexcelled throughout the world - are carefully selected and processed at Wellsville under strict quality controls to serve you with a truly superior refractory.

With a more than adequate source of these fine clays to back up a heavy investment in new facilities, in electronic controls, and in constant research, Wellsville produces several million brick a year - all with consistently uniform quality.

SPECIFY WELLSVILLE WITH CONFIDENCE

WELLSVILLE *Fire Brick* **COMPANY — WELLSVILLE, MISSOURI**

Local representatives throughout the nation to better serve you.

Circle Service No. 28

Compact 1-yd. loader has 4-wheel drive

With an operating capacity of 3,000-lbs., the new H-30 PAYLOADER is a natural for loadout work from pits and for feeding to process from stockpiles. This is the smallest PAYLOADER ever made with 4-wheel drive. In spite of its compact size, it has all the latest improvements of larger PAYLOADER units that give it operating advantages not found in other machines of comparable size.

Featured on the H-30 is the new Hough boom arm design (with single hydraulic bucket ram) that provides maximum visibility for the operator, improved machine balance, stability and complete safety in operation. It has 3 forward and reverse speeds up to 25 mph. and a 43° bucket tip-back at ground level for powerful digging action.

Other Outstanding Mechanical Features Include full reversing power-shift transmission with torque converter, power steering, power-transfer differentials, planetary final drives, hydraulic brakes on all 4 wheels and a closed, pressure-controlled hydraulic system. Maximum accessibility also is designed into the H-30: the fuel tank and transmission can be checked and filled from ground level and the battery, hydraulic valves and other checking points all are within easy reach.

The Tougher Your Digging and handling requirements are, the more you need PAYLOADER dependability. A Hough Distributor nearby is ready to give you complete data and a demonstration of the H-30 or any other PAYLOADER. There are more than 20 models in 8 capacities, ranging from 2,000 to 12,000-lbs. He will help select the model that best fits your needs and has the finest service organization in the rubber-tired shovel industry.

HOUGH, PAYLOADER, PAYMOVER, PAYLOGGER and PAY are registered trademark names of The Frank G. Hough Co., Libertyville, Ill.

H-30's ADVANCED DESIGN features slope-down front end for maximum visibility at all times. Note how boom arms pivot well ahead of the operator's position for maximum safety.

HOUGH®

THE FRANK G. HOUGH CO.
LIBERTYVILLE, ILLINOIS
SUBSIDIARY – INTERNATIONAL HARVESTER COMPANY

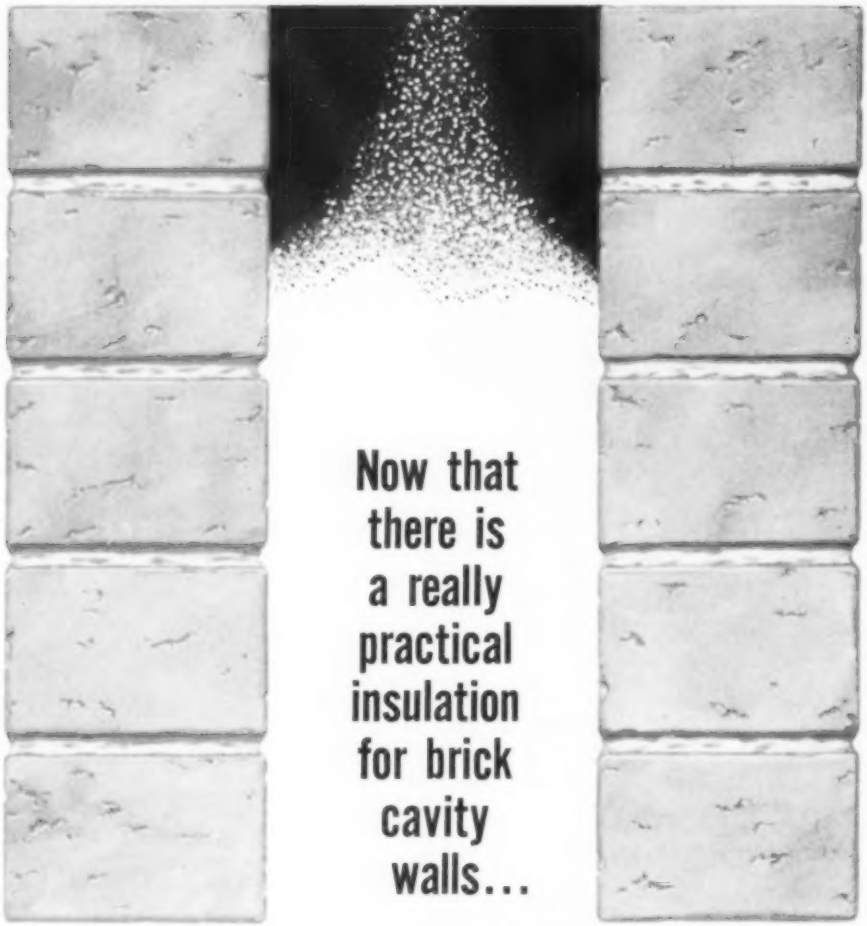
THE FRANK G. HOUGH CO.
753 Sunnyside Ave., Libertyville, Ill.

——— Send data on new H-30 "PAYLOADER"
——— Send data on other models and attachments

Name _____
Title _____
Company _____
Street _____
City _____ State _____

5-B-7

Circle Service No. 29



Now that there is a really practical insulation for brick cavity walls...

THINK OF THE EXTRA BRICK YOU CAN SELL!

Zonolite Masonry Fill Insulation gives you a great sales story to tell architects and builders about brick cavity walls. First of all, they can feel confident they're doing a sound building job when they combine *brick* —for both exteriors and interiors—with Zonolite Masonry Fill Insulation. It's water repellent . . . stays dry *permanently*.

Second, the striking motifs of modern brick walls can be fully utilized, by eliminating the usual need for special interior wall surfacing.

Third, Zonolite Masonry Fill is a highly efficient insulation. It cuts heat transfer through brick cavity walls up to 50% or more.

Fourth, it's quite inexpensive; as little as 10¢ per square foot of wall, installed.

And fifth (but you needn't tell this to architects or builders), dealers will make more profit by selling the insulation as well as the brick . . . as much as $3.00 more per thousand on a brick and block cavity wall. For complete information, drop a note to:

ZONOLITE COMPANY
135 South LaSalle Street, Chicago 3, Illinois
BCR-51

Circle Service No. 30

FOR FAST EVEN HEATING USE NORTH AMERICAN

FLAT FLAME BURNERS

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THE SECRET OF SUPERIORITY:

Flame direction is parallel to furnace refractory

Uniform Temperature with Fewer Burners

No flame impingement on load.

Flame & hot gases scrub refractory for uniform heating—not a series of localized hot spots.

A Real Cool Burner for Real Hot Jobs

Tile stays relatively cool—no bottled-up heat as in concave tiles.

No metal parts extend into throat of burner tile.

Call your nearby North American Combustion Engineer or write for

NORTH AMERICAN for COMBUSTION and Hydraulic Controls

The North American Mfg. Co.
Cleveland 5, Ohio

Circle Service No. 31

Editorial

Let's Write Them Off in Five Years

Slow depreciation of equipment is a stumbling block to progress. Two very glaring recent events point up this fact. Firstly, the ability of West Germany and Japan to manufacture efficiently and at low cost is the result of new and modern equipment in their factories. Both countries also have fast depreciation laws. Secondly, changes in equipment are coming so fast that even relatively new equipment, by our standards, is long obsolete before enough funds are accumulated from depreciation to make a replacement.

There are two bills before Congress which deal with this question and would relieve the situation greatly. They should be vigorously supported by every manufacturer. Congressmen should be urged to support one of the bills.

Equipment in the heavy clay products industry under today's laws is depreciated over a period of 15 to 20 years. Some can be written off in as little as five years and with major items the period required is beyond 20.

As a result much equipment in use is obsolete. For instance, a study of power shovels in the industry reveals:

10.9% less than 2 years old
32.0% are 2 to 5 years old
34.1% are 5 to 10 years old
17.6% more than 10 years old

A ¾-yd. shovel working in a clay pit, according to several operators, is fairly well worn in 5 to 7 years. Therefore, over half the shovels in the industry are ready for replacement. Yet depreciation in most plants is figured on a 10 to 15-year basis.

The story is the same for extrusion equipment, presses, mixers, grinders, etc.

The industry needs a new look at this problem of depreciation both by the operators, the Internal Revenue Department and the law. Equipment could very well be depreciated over a 5-year period. The depreciation funds would be carefully invested until such time as a replacement is needed.

The entire industry then would avoid the hazards of becoming obsolete and noncompetitive.

J. J. Shea

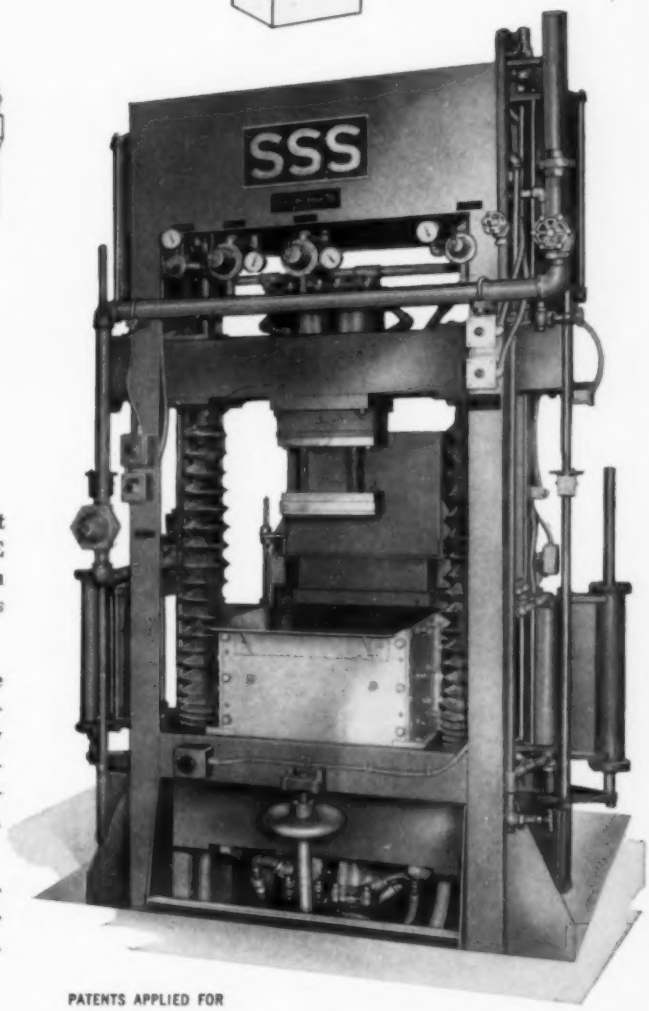
Editor & Publisher

NOW . . . you can make

LARGER...THICKER...MORE INTRICATE Shapes

with the

SUPERIOR PNEUMATIC IMPACT PRESS



PATENTS APPLIED FOR

Make them

at HIGHER SPEED

at LOWER COST

Lower equipment cost...lower installation cost ...lower operating cost! You get ALL THREE with the new SUPERIOR Impact Press. And you can make *larger, thicker, more intricate shapes* with most any refractory material!

The SUPERIOR Impact Press is not only capable of handling dry press material but it is also excellent for shaping stiff mud materials. Many shapes now being hand-moulded may be economically made on this machine which are tremendously superior in physical size and density. Complete outfit change is fast and easy.

Here is a complete new press—including Charger Assembly and Control System—just waiting for you to get acquainted with its profit making possibilities in your own plant.

WRITE FOR LITERATURE

New literature on the Superior Press is available for the asking. Don't delay! Write us TODAY for your copy.

1. Positive Step Sequence Control.

a. 220 volts. 32 cycling combinations at the flick of switches.
b. Automatic operation.
c. Semi-automatic operation.
d. Safety emergency stop.

2. Full Pressure and Flow Control of All Air Circuits.

Manufactured by SUPERIOR SUPPLY SERVICE, INC., Fairfield, Alabama

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THE OHIO FIRE BRICK COMPANY, OAK HILL, OHIO • MUtual 2-3411

Exclusive Sales Agents in U.S. and Foreign Countries

Circle Service No. 32

A. P. GREEN

INSULATING FIREBRICK

CUT FUEL COSTS . . . INCREASE PRODUCTION IN PERIODIC KILNS

There has been a tremendous increase in the use of lightweight Insulating Firebrick for lining both round and rectangular down-draft kilns.

An average saving of 20% in fuel has resulted in kilns using Insulating Firebrick in only the kiln crowns. A 35% reduction in fuel costs was accomplished in a recent installation of A. P. Green G-26 Insulating Firebrick in the side walls and crown of a 28-foot diameter, coal-fired kiln.

Other advantages of A. P. Green Insulating Firebrick in periodic kilns are—reduction in time of firing cycle because of the faster heating and cooling of the lightweight lining; more uniform heat distribution throughout the kiln and easier temperature control—resulting in fewer rejects and less breakage of the ware; more comfortable working conditions because of the faster cooling of the kiln; and ease of weatherproofing the much cooler crown with low melting asphalt base compounds.

Let your A. P. Green Representative assist you in selecting the proper quality of Insulating Firebrick for your kilns from A. P. Green's complete line—six different brick for temperatures from 2000° F. to 3200° F. He's listed in the classified section of your telephone directory . . . or write direct.

A. P. Green
REFRACTORY PRODUCTS

SERVE THE WORLD'S INDUSTRIES

A. P. GREEN FIRE BRICK COMPANY

MEXICO, MISSOURI, U.S.A.

PLANTS: Mexico, Mo. • Woodbridge, N. J. • Sulphur Springs, Texas • Jackson, Oak Hill, South Webster, Ohio • Philadelphia, Taremtum, Climax, Pa. • Troy, Idaho • Pueblo, Colo. • Macon, Ga. • Birmingham, Ala.

IN CANADA: A. P. Green Fire Brick Co., Ltd., Toronto 15, Ontario

Circle Service No. 33

NEWS OF THE INDUSTRY

Brick Executive Views Military Construction

A leading brick and tile manufacturer has told congress that an estimated $170 million could be saved on military construction at the present rate of expenditure by selecting building materials on the basis of their cost over 25 years of use.

In testimony presented to the House Committee on Armed Services in hearings on new military construction bills, Kenneth W. Dunwody, a director and past president of the Structural Clay Products Institute and president of the Cherokee Brick Co., Macon, Ga., declared that adoption of an ultimate cost policy of military building would save 10% of the operation and maintenance cost of government owned buildings.

42 Working At McArthur Brick

Takeover by the Jackson Sand Mining Co., Jackson, O., of the McArthur Brick Co., McArthur, O., which was reported in the March issue of BRICK & CLAY RECORD, is now complete and 35 hourly workers have been at work since April 5. All but three are former McArthur Brick employees. All seven of the supervisory personnel have also returned since beginning the new operations.

Acme Announces Dividend

The Acme Brick Co., Little Rock, Ark., has announced a quarterly dividend of 30 cents a share of common stock. The dividends are being paid to stockholders of record April 15.

Announce Packaged Pump Station

A new rectangular-shaped packaged pump station, known as the "Tex-Quad", has been announced by the Tex-Vit Manufacturing Company, Mineral Wells, Tex.

Described as the first packaged pump station designed to fit the equipment, the company's newest addition to its line of sewage and industrial lift stations features a shaped for growth rectangular steel shell which offers extra floor space for future expansion of its pumping unit equipment.

"Tex-Quad" first was introduced last year in a national exhibit at Philadelphia.

Jenkins Brick President Plans Retirement in June

The directors of the Jenkins Brick Co., Montgomery, Ala., recently announced that Harry Monroe Meek, president of the firm, will retire effective June 20.

American Vitrified Buys Lehman Sewer Pipe Co.

American Vitrified Products Co., Cleveland, O., a producer of clay and concrete pipe and kindred materials recently announced a series of moves aimed at strengthening their East coast sales organization.

Jack L. Brown, vice president and general sales manager, revealed that American Vitrified has purchased the Lehman Sewer Pipe Co., New York, N. Y. as reported in the March Issue of BRICK & CLAY RECORD. At the same time he also announced the bolstering of the Eastern Marketing Division by the addition of six men to cover this territory.

These moves follow the completion and full production start-up of American Vitrified's new multi-million dollar plant located at Somerville, N. J.

A. R. D'Aleo, who headed Lehman, will continue in this capacity.

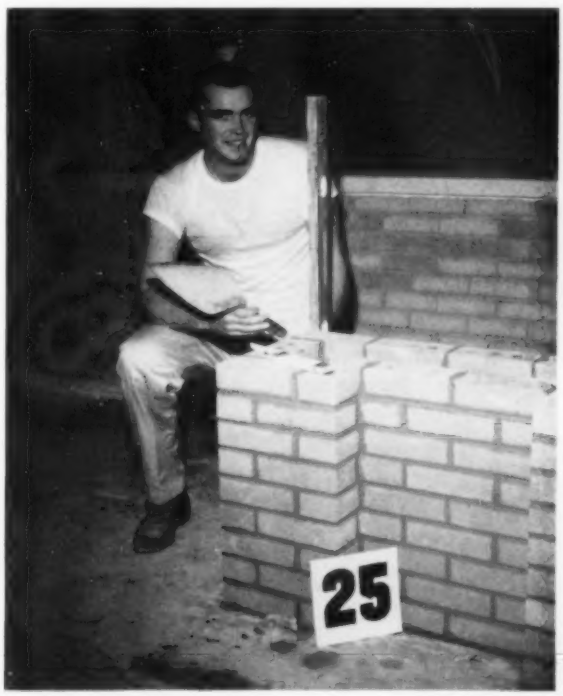
Acme Brick Honors Six For Company Service

Acme Brick Co., Tulsa, Okla., has announced they have presented service award pins to six Tulsa employees.

The awards were made by Chester Brannaman, plant superintendent.

C. C. Ramsey and Fred Spyres received 35-year pins; Elvie Wells and M. J. Reese, 15-year pins; C. B. Jefferson, a 10-year pin; and H. C. Oliver a 5-year pin.

1961 Champion Bricklayer Apprentice



Arthur H. Gray, Jr., 20-year-old New Jersey apprentice, proudly shows the masonry talent which won him the title of 1961 Champion Bricklayer Apprentice at the AFL-CIO Trades and Label Show on April 11, in Detroit, Mich. Gray, who is a third generation bricklayer, won $500 from the BM&PIU and $100 and the Bolden Trophy from the Structural Clay Products Institute, national association of brick and tile makers. He also received a plaque from the Mason Contractors Association of America.

Release Figures on Manufactured Homes

Statistics can be dull. But sometimes just a few simple ones can tell a big story. For example, 13% of the single family housing starts in 1960 were manufactured homes (they used to be called pre-fabs). This was the eighth year in which this percentage increased. Compare that 13% figure in 1960 with 6% in 1946 and you can see how the manufactured homes market is booming.

What does this have to do with the brick industry? Well, in most areas of the country a manufactured home builder can't get to first base with his customers if there isn't some brick in his home—either on the exterior wall, the interior or in the outdoor area. That's where the alert brick man finds a new market.

The possibilities are well defined in a article that Len Kirsten, SCPI's director of public relations, wrote for the February issue of *Manufactured Homes* magazine.

Reprints are available from his office for $3.50 a hundred.

Uncover 15-foot Vein of Brick Clay

Overburden Stripping in pit of L. R. Chapman, Inc., Lewisport, Ky., by International TD-25 crawler uncovers average 15-foot-deep usable vein of shale or clay for brick, quarry tile and sewer pipe fabrication. Overburden, averaging 23 feet, consists of one-third dirt and two-thirds sand rock and unsuitable shale. The company operates four pits within a two-mile radius in Hancock County.

Clay Pipe Bill Gains Momentum

The Clay Pipe Proposal in the State of Ohio which will require the use of clay pipe for state highway drainage is gaining support from all sections of that state. Several legislators have announced support of the bill, as has the United Mine Workers of America, Local 1949 who endorsed a resolution urging passage of the bill by the General Assembly. Ohio's governor Michael DiSalle has assured the lawmakers that every consideration will be given the bill before any action is taken.

Acme Acquires Fraser Brick & Tile

Acme Brick Co., Fort Worth, Tex., has purchased all assets of the Fraser Brick & Tile Co., Sequin, Tex., for about $1 million in cash, it was announced recently by Neill Boldrick, president of Acme, and David Martin, president of Fraser. The acquisition gives Acme its first production facilities in South Texas, Mr. Boldrick said.

Architects' Group Honors Whitlock

Douglas Whitlock, chairman of the Allied Masonry Council and the Structural Clay Products Institute, Washington, D. C., received as "Honorary Membership" in the AIA during the national convention of the American Institute of Architects, April 24-28 in Philadelphia, Pa. A check of the records shows that only 49 national or international leaders have ever received this honor in the past 52 years. The entire industry congratulates Whitlock.

Cahners Publishing Forms Info Handling Service

The Cahners Publishing Co., Inc., Boston, Mass., publishers of BRICK & CLAY RECORD, together with the Narragansett Capital Corp., has formed a new company called Information Handling Service, Inc. Further details on this important service will appear in next month's B&CR.

Joins Southern Group

The Chattahoochee Brick Co., Atlanta, Ga., has joined the Southern Brick & Tile Manufacturers Association.

Obituaries

G. W. Lindsay

George W. Lindsay, 73, retired vice president of Denver Fire Clay Co., Denver, Colo. died April 11 after a long illness. Lindsay, a native of Denver, was associated with the company for 30 years.

O. L. Buzard

Otto L. Buzard, 83, vice president of Ross Clay Products, Uhrichsville, O., died March 29, in Dover, O. At one time Mr. Buzard was general manager and secretary of the company.

H. K. Clark

H. K. Clark, 71, president of the Carborundum Co. from 1947 to 1952 and a member of its board of directors from 1946 to 1949, died April 12 at his home in Washington, D. C. Clark had also served as vice-president and general manager of the abrasives division of the Norton Co., Worcester, Mass.

William C. Cress

William C. (Bill) Cress, General Manager of Eastern Brick & Tile Co., Sumter, S. C. died in Hahnaman Hospital in Philadelphia March 28 following a lengthy illness.

Wins Ad Award Mason Color & Chemical

Mason Color & Chemical Works, East Liverpool, O., has won the bronze award in the Industrial Advertising Classification of the Affiliated Advertising Agencies Network. The award was given for a series of ful color inserts, which have run in

Ronald K. Mason holds award

BRICK & CLAY RECORD. This is the second time in four years that Mason has received an award for this series. Shown in the photograph above is Ronald K. Mason, vice president, Mason Color and Chemical Works, holding the AAAN bronze award, which is international in scope.

Boyd Miller Set Upon By Thugs In Toronto

Boyd Miller, president, Miller Equipment Co., Salisbury, N. C., was beaten very severely by thugs at the American Ceramic Society's convention held recently in Toronto, Ont. Miller was confined to the hospital throughout the convention by a broken jaw and severe bruises about the head and face, and was flown back to Salisbury, N. C. at the conclusion of the convention. The staff of this magazine wishes Mr. Miller a speedy recovery and hopes he will be back at job of building tunnel kilns in a few weeks.

Report French Glazing Process for Brick

A report of a process for glazing brick using the engobe process has been received by this magazine from France. The new process is claimed to have excellent properties, with good surface texture. Further details on this process are expected to be published in a future issue of BRICK & CLAY RECORD.

ACS Convention Candids

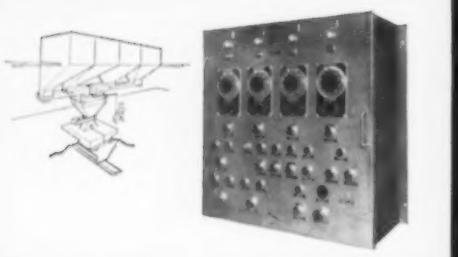
S. A. Stone, Deister Concentrator Co.; M. Browning, Cooksville-LaPrairie Brick Co.; and Forrest Paschal, Deister Concentrator Co.

John Van Ravestein, Carpenter Engineering Services; Homer Wilson, Delaware Clay Co.; and Robert Carpenter, Carpenter Engineering Services.

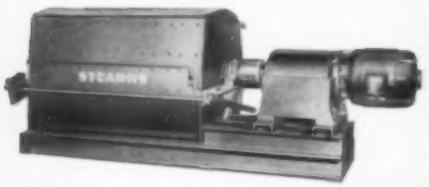
Robert Ferguson, Yankee Hill Brick Co.; George Bauer, Garden City Fan Co.; and Philip Dressler, Swindell-Dressler Corp.

Below, B. H. Valia, Pilkington Tiles Ltd.; Fred Barber and Walter Schotts, Harrop Ceramic Service, Inc.; and Art Moulton, Master Machines, Inc.

Richardson Select-O-Weigh Systems *
... for the automatic control of materials handling by weight.

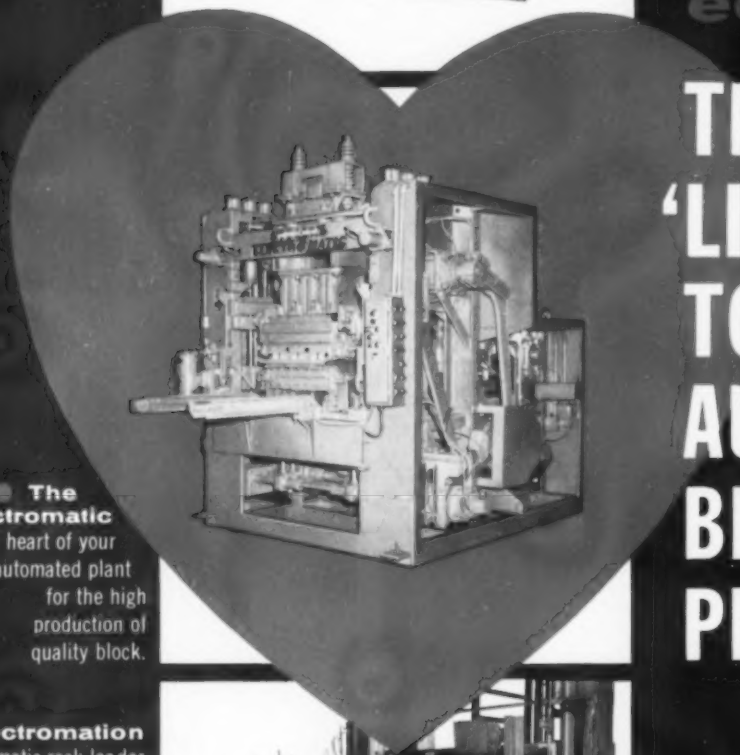


60 Cu. Ft. Mixer
... for an uninterrupted supply of properly mixed materials.



STEARNS advanced design equipment...

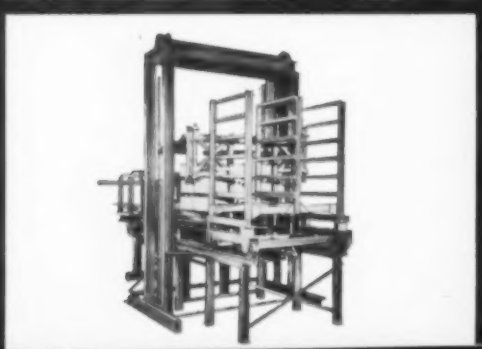
THE 'LIFE-LINE' TO AUTOMATED BLOCK PRODUCTION



The Electromatic
... the heart of your automated plant for the high production of quality block.

Electromation
... automatic rack loader and unloader, designed and engineered to incorporate the latest innovations for block plant automation.

Automatic Rack Stripper
... for those plants that want automation equipment for the rack-unloading phase only.



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MANUFACTURING COMPANY • INC.
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COMPLETE CONCRETE PRODUCTS PLANT EQUIPMENT

*Stearns, the exclusive authorized agent for the sale of Richardson Select-O-Weigh systems to the concrete industry.

SCPRF News

William S. "Bill" Sells, vice president in charge of production for the General Shale Products Corp., Johnson City, Tenn., is another example of a busy brick maker who is always available to attend important meetings of SCPRF's executive committee of which he is a member.

Bill is a native of the Johnson City area. He was born in Bristol, Tenn., and attended Davidson and King Colleges and Johnson City Business College.

William S. Sells

Sells began his career in the clay industry in 1927 when he went to work for the Johnson City Shale Brick Corp. as a brick grader. When the Johnson City company consolidated with the Kingsport Brick Corp. in 1928 to form the General Shale Products Corp., Bill became timekeeper at the Johnson City plant. From 1930 to 1945 he served as superintendent of a number of General Shale plants in Tennessee. In 1945 Bill was elected to General Shale's Board of Directors and served as assistant to the president. He assumed his present position as vice president in change of production in 1946.

In addition to his active participation in the affairs of SCPRF, Bill has served as president of the Southern Brick and Tile Manufacturers Association and is currently on its board of directors. He has also served as a director of the Virginia Brick Association and has been a member of the American Society for Testing Materials for many years and actively participates in the work of ASTM Committee C-15. His membership on the Southern Advisory Board of the American Mutual Liability Insurance Co. is evidence of his interest in a wide variety of business affairs.

Sells is most proud of the citation given to him in 1954 by King College for "Outstanding Achievement in Service to Church and Community." This award was given to Bill partly in recognition of his work on the Johnson City Board of Education, of which he is still a member and which he formerly served as chairman. He is also past president of the Johnson City Chamber of Commerce, member of Rotary International and a Past Commander of the Tennessee State Guard Unit.

Bill Sell's practical brickyard knowhowhas proven to be a valuable asset of SCPRF's executive committee, of which he is one of the more articulate members.

* * *

A member of the board of management of SCPRF recently said: "The younger people in the production end of our industry are hungry for technical knowledge and assistance." He made this statement in endorsing a proposal that the Foundation sponsor a seminar for plant personnel of members of the Foundation. SCPRF's executive committee has authorized the staff to proceed with plans for such a seminar to be held this fall or early in 1962. To work with the staff in planning this first seminar, chairman A. C. Frisk appointed the following committee: J. B. Edwards, Reliance Clay Products Co., chairman; Fred Blosser, Stark Ceramics, Inc.; John Isenhour, Isenhour Brick and Tile Co.; O. J. Whittemore, Vincent Clay Products Co.

The primary purpose of the seminar will be to provide help for production men from the vast store of existing knowledge and experience and to point out areas where serious plant research might be needed. Speakers will be selected from among the top experts in several fields.

* * *

The Spaulding Brick Co. of Boston, Mass., a dealer and distributor for a wide range of structural clay products and a charter member of NADD, is doing a tremendous job of promoting the sale and use of SCR brick* in their area. They have now combined SCR brick with the SCR masonry process** as a double-barreled sales tool in helping to convert frame homes to brick. If this enthusiasm and hard-hitting promotion on the part of Spaulding Brick and their sales people is sustained, these two SCR developments can't help but increase their participation in the housing market.

* * *

The field staff of SCPRF has conducted several successful field trials of the new SCR corner pole. As a result of these field trials, plus a number of helpful suggestions from the masons who have tried the new poles, several minor improvements are now being incorporated in the design. So far, the general consensus of the mason crews who have worked with the new pole design is that it is superior to any other corner pole now in use. They have been particularly impressed with its simplicity and ease of erection and use. The ruggedness without bulk has also impressed these men. Additional field trials on a variety of types of buildings and wall types is planned before the new pole will be put into production.*

* * *

SCPRF's cooperative program with Dow Chemical Co. on the development of the high-bond mortar continues to occupy a high priority position. With the basic structural testing phase of the program nearing completion, the Foundation staff is currently involved in that part of the evaluation program concerning the workability of the new mortar. Dow has completed its first phase of its durability study. This involved subjecting small 4-in. brick wallettes to 50 cycles of freezing and thawing under saturated conditions and then testing them for transverse strength. The results of these tests were most satisfactory—both from the standpoint of the durability of the mortar itself and of the bond between the mortar and brick.

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* Reg. U.S. Pat. Off., Pat. Pending., SCPRF
**Reg. T.M., Pat. Pend., SCPRF

New Plant Starts Operation

A new facility for the production of special-tar-bonded refractories for use in the basic oxygen steel making process has commenced operations at Columbia, O.

The plant is operated by Kaiser Refractories & Chemicals Div., Kaiser Aluminum & Chemical Corp. The installation at Columbia is Kaiser's second for making tar-bonded refractories. Similar facilities are located at Moss Landing, Calif.

Gladding, McBean Starts Firebrick Production

Gladding, McBean & Co., Los Angeles, Calif., has announced that they will soon start production of high quality firebrick and related refractories at Murray, Utah.

Refractories Institute Announces Spring Meeting

The annual Spring membership and board of directors meeting of The Refractories Institute will be held at The Grenbrier, White Sulphur Springs, W. Va., June 22 and 23.

Detailed information about the agenda for the business sessions and the social program of this meeting, marking the 10th anniversary of the Institute will be published on this page when it becomes available.

Babcock & Wilcox Issues New Firebrick Bulletin

Ceramic engineers, works managers, purchasing agents and others interested in the economics of refractory products, will find valuable information in this new bulletin, "B&W Insulating Firebrick for the Structural Clay Products Industry", recently released by the Babcock & Wilcox Co., Refractories Div., New York, N. Y.

This 16 page illustrated bulletin describes the various benefits of B&W insulating firebrick as used in the industry. Different applications of B&W insulating firebrick are shown in the building of various types of periodic kilns including shuttle and thin wall kilns.

Chicago Fire Brick Appoints Baxter

Robert P. Stevens, vice president, refractories and building materials of the Chicago Fire Brick Co., Chicago, Ill., has announced the appointment of Gordon J. Baxter, manager sales and production.

A. P. Green Appoints Two

The A. P. Green Fire Brick Co., has announced the appointment of two men in their company. The appointments were announced by William S. Lowe, president.

Appointed to the position of director of engineering was Floyd M. Maupin. In his new capacity Maupin will assume direction of all industrial and plant engineering functions.

Floyd M. Maupin

Dr. J. A. Crookston

Appointed to the position of director of research was Dr. James A. Crookston. He will be responsible for directing research activities for all products and plants within the Green organization.

ASTM Committee C-8 Classifies Firebrick

Interlaboratory data have been compiled by ASTM Committee C-8 on Refractories for establishing a new Group 30 insulating firebrick. Classification 155 will be revised to accommodate this new group, and Method C-210 will be revised to include a new heating schedule for it.

An interlaboratory study to establish correlation between long- and short-term load tests on semi-silica, mullite, and 60% alumina refractory brick has been initiated. Two short-time load schedules have been proposed to provide data to correlate with existing long-time data in order to establish the schedule that may predict reliable long-time load information.

Four dynamic and one static simulated service test for the erosion of glass tank refractories are to be cooperatively tested by three laboratories. The resulting data will be used in the development of a laboratory scale test that will predict the erosion of refractories used in continuous container glass furnaces.

The incorporation of the Phelps consistency meter developed by the Refactories Institute Fellowship at Mellon Inst. has been completed after extensive laboratory development. This apparatus will be incorporated in Methods C 268 and C 269.

A new classification covering mullite refractories has been developed based on hot-load test data. The classification will be presented for publication as tentative; however, further data are being solicited for refinement of the classification.

A new section has been organized to cover test furnaces and controls for the development of laboratory data on refractories. The first investigation will be directed toward reheat test furnaces covering temperatures above 3000°F.

Walsh Refractories Appoints Kennedy

Appointment of Leonard Kennedy to the position of plant manager at the Vandalia, Mo. factory, has been announced by A. J. Tomasek, president of Walsh Refractories Corp., St. Louis, Mo. With Walsh since 1934, Kennedy has served in various supervisory capacities, earlier as a foreman and since 1959 as assistant plant manager.

Harbison-Walker Reduces Prices

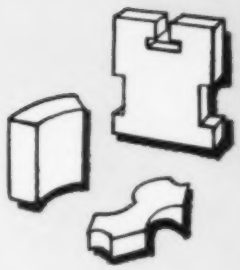
Harbison-Walker Refractories Company, Pittsburgh, Pa., announces a price reduction of $7.00 per thousand on high-duty and semi-silica 9" and 9" sizes effective April 24, 1961. Sizes other than 9" and special shapes are not affected. Harbison-Walker states this action is designed to achieve a more competitive position.

See Johns-Manville story page 48

Circle Service No. 35 ⟶

PUT *Air Power* TO WORK

FOR PROFIT ON SPECIAL SHAPES



HANDLES ALL REFRACTORY MATERIALS.

WHY TIE UP production presses for short runs on special shapes?

Here's how it works:

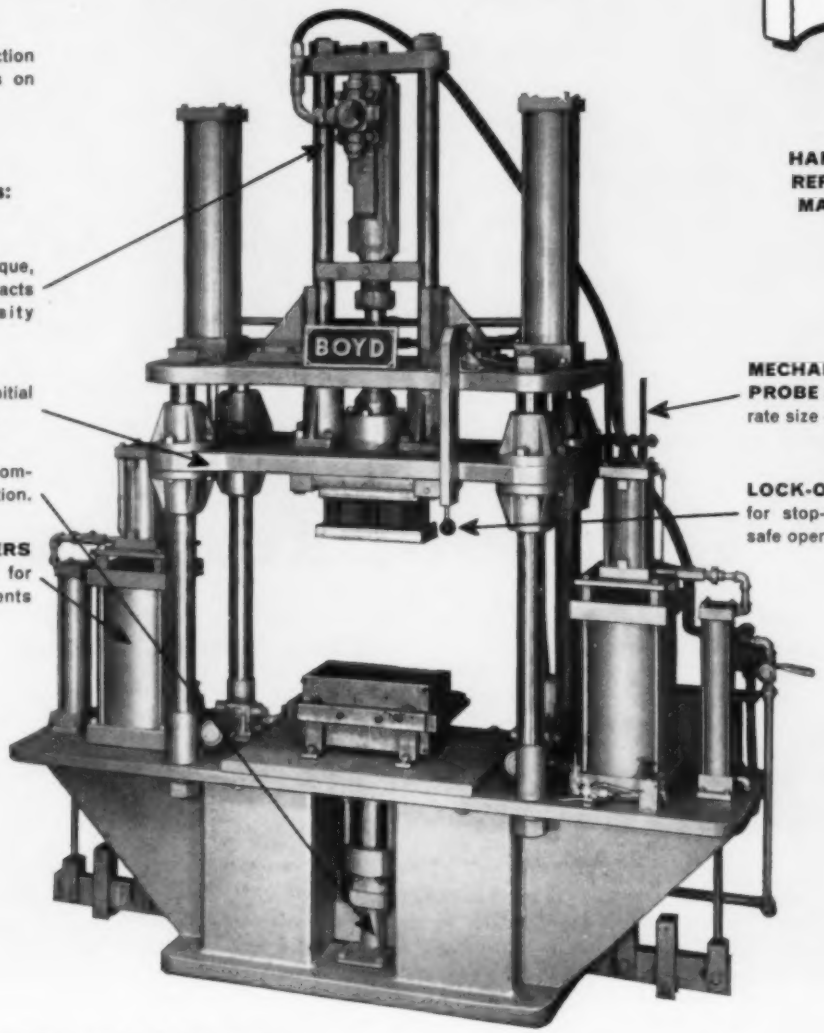
TOP TAMPER of unique, heavy duty design compacts mix to desired density after . . .

CROSSHEAD exerts initial pressure—and holds it.

BOTTOM TAMPER completes top-'n-bottom action.

RETARDER CYLINDERS give oil-cushion action for smooth ejection, prevents "popping."

BOYD BUILT— for dependability.



MECHANICAL PROBE assures accurate size control.

LOCK-OUT LATCH for stop-start assures safe operation.

SHAPE-O-MATIC . . . a new Compacting Press by BOYD

Here's the press that is destined to do away with unnecessary and costly hand molding of special refractory shapes.

The new Boyd *Shape-O-Matic* compacting press puts air to work to reduce the labor, guesswork and *scrap* common to hand pressed shapes. You use a minimum of moisture and set direct to the kiln car. Most important, Shape-O-Matic is designed to handle *any* refractory material. In-plant experience has shown that densities are possible which approach that achieved on a power press.

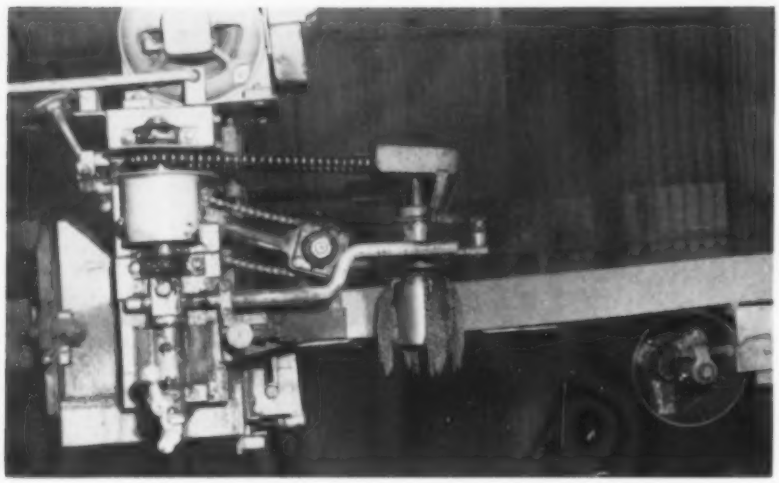
If you're hand molding . . . or tying up high production power presses for short runs on special shapes, it will pay you to investigate how the new Boyd Shape-O-Matic can quickly pay its way in your plant. *Write for specifications.*

BOYD POWER PRESS

CHISHOLM, BOYD & WHITE COMPANY 1060

A Subsidiary of Wehr Steel Company

610 W. 57th STREET • CHICAGO 21, ILLINOIS



The texture machine located at the mouth of the die consists of rotating discs upon which are fastened chains, which create the texture when rotated.

Supply of Brick-Making Clay Unlimited in

Gleason, Tennessee

Clay Mining Center of the World

South's Newest Plant Making Many Types and Blends from Variety of Local Clays Available

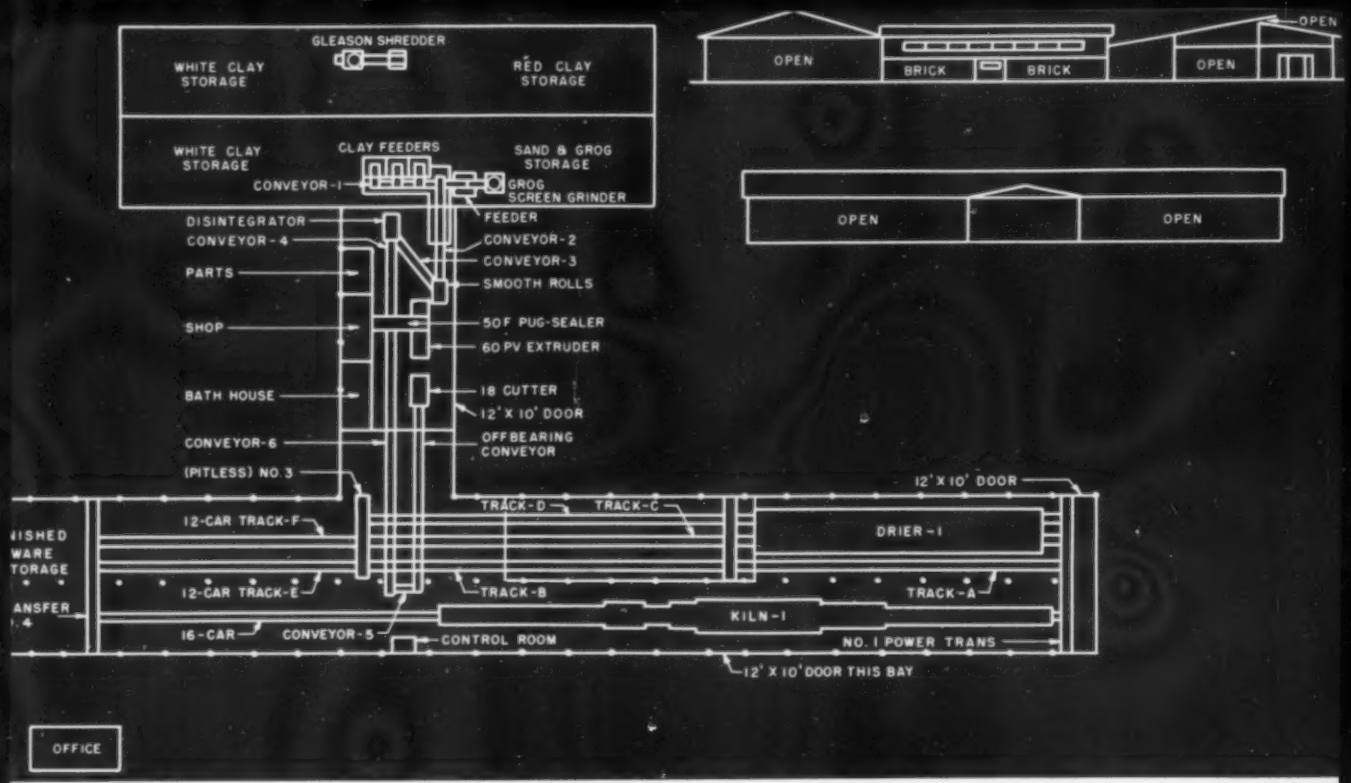
When John Herbert, president of W. G. Bush & Co., Nashville, Tenn., started thinking about expanding the company's operations, it was only natural that he considered the Western Tennessee area. For his company was shipping brick to that area daily, a haul which involved a 125 to 150 mile trip, each way. Since this portion of the state was rich in raw materials, Herbert started investigating about the possibility of an entirely new plant to supply this market. These two factors, plus the fact that Herbert wanted to make a light-colored brick to supplement his Nashville red-brick operations, drew him to Gleason, Tenn., whose Chamber of Commerce boasts it as "The Clay Mining Center of the World". This boast is not without ample reason; Gleason is the home of five major clay processors.

Since Herbert's new brick plant started operations in the fall of 1960, the wide range of raw materials available from the Gleason area has assured it of success. The new company which was formed is known as the Gleason Clay Products Co. and is already producing more than 20 different types and blends of brick. Herbert sees many more products in the future and future plans for expansion of the present facilities include equipment to manufacture these additional products.

Clay for the operation of the new plant is obtained from a local producer of clay in the area, Bell Operations. The clay used is not suitable for use in sanitary ware, dinner ware and wall tile, but is excellent for use in brick. At the present time, two types of clays are being utilized, one of which is a white-burning clay and the other a red-burning obtained from the overburden of the local clay producer.

The entire layout of the plant is simple, but efficient. Because the pri-

Three hacking tracks are provided at the plant with facilities for adding three additional tracks in future expansion of the facilities. Notice plastic over ends of cars to prevent spillage from air drying.



Outline Drawing of Gleason Clay Products New Plant in Gleason, Tenn.

mary crushing of the raw material is done at the supplier's plant, there was no need for the Gleason Clay Products to install primary crushing equipment. The clay is delivered to the plant site and run through a Gleason shredder before being stored in an 80-ft. by 240-ft. storage shed. The shed is divided so that the red-burning material is stored at one end of the building and the white-burning material at the other end. Provision has been made in the lay-out of the storage shed, and the entire plant, for future storage and use of a non-plastic material, be it sand or grog.

A Caterpillar 922 Traxcavator is used to reclaim the material from storage and deposit it into a three-hopper bin, one for the red clay, another for the white-burning clay and the third for the grog. At this time, only the two clay bins are being utilized.

Material Proportioned

J. C. Steele even-feeders are located under each of the bins and proportion the correct amount of material in each bin to a belt feeder which delivers the material to a central conveyor. The only two secondary grinding machines in the plant are a J. C. Steele smooth roll and a J. C. Steele disintegrator. The conveyor carrying the raw material from the even-feeders feeds the roll conveyor first and then doubles back to the disintegrator. From this second machine the clay is carried directly by another belt conveyor to the pug sealer in the system.

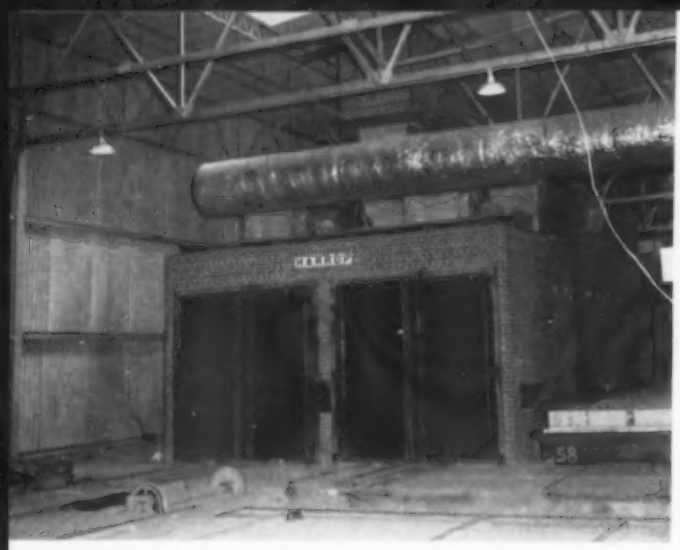
The pug sealer was also furnished Gleason Clay Products by J. C. Steele & Sons, as was all the other forming equipment. This apparatus is equipped with de-airing and an automatic water-spray, so that only one operator is required to operate the pug mill, the brick machine and the cutter. All the equipment is electrically interlocked so that when one machine stops, the entire system shuts down.

The pug sealer feeds a Steele No. 60 FV extrusion machine, capable of producing 18,000 brick per hour. The machine is big enough to handle the immediate expansion plans of the company, in which the possible installation of a second tunnel kiln is of primary consideration. The Steele No. 18 cutter is also adequately sized to take care of any additional production the company anticipates in the next few years.

Move Cars Automatically

Three hacking tracks, with provisions for three more, are provided in the main kiln building which is 70-ft wide and 500-ft long. Six brick-hackers are used on these tracks to set the entire plant's production. The cars are moved to proper setting locations automatically by hydraulic car pullers furnished the company by Engineering Associates. 3552 standard size brick are hacked on the cars which are 9-ft. 2-in. long, and 8-brick wide.

A 48-car green storage area has been provided in the initial layout for weekend storage of the hacked brick. When the three additional hack-



A 2-track Harrop dryer, 130-feet long is equipped with three recirculating zones. Waste heat temperatures in the dryer average between 450 and 460°F.

One man operates the entire mill room, which consists of Steele machinery, including the pug-sealer, the 60-FV extruder and the No. 18 cutter.

An Allis-Chalmers lift truck loads the brick upon one of the delivery trucks just arrived from Nashville. Everything is packaged at the plant with Superlite unloaders used for delivery purposes.

ing tracks are installed, another 48-car green storage area will also be provided in the new layout.

From the green storage, the cars are transferred to a two-track Harrop dryer 130-ft. long, holding 14 cars on each track. A return track is provided adjacent to the dryer for return to the waste belt of any faulty cars which may come out of the dryer. The dryer itself is equipped with three recirculating zones. The Robinson fans on the dryer recirculate the initial waste heat of 450° to 465°F throughout the dryer. To prevent condensation of the ware as it enters the dryer, the waste heat system is also provided with a take-off so that hot air can be pulled into the cold end of the dryer. A small fan on this take-off provides the power for accomplishing this.

Transferred Directly

When the brick leaves the dryer at 450° F, they are transferred directly to the 290-ft. Harrop tunnel kiln, which holds 30 active cars. Like the dryer, the kiln is also equipped with three recirculating zones for preheating of the ware. The last two of these zones are also equipped with dual-fuel burners, four in each zone. These North American burners are used when the kiln is on a rapid schedule.

From the recirculating section of the kiln, the cars enter the preheat section which is equipped with 11 burners on each side, or a total of 22. These are also dual-fuel burners. The furnace section of the kiln is seven cars long and is equipped with a total of 32 burners. Peak firing temperature of the brick is around 2150° F, with slight alterations necessary depending upon the type of brick being burned. With this crown temperature of 2150°, temperatures noted with an optical pyrometer approximate 2200° F.

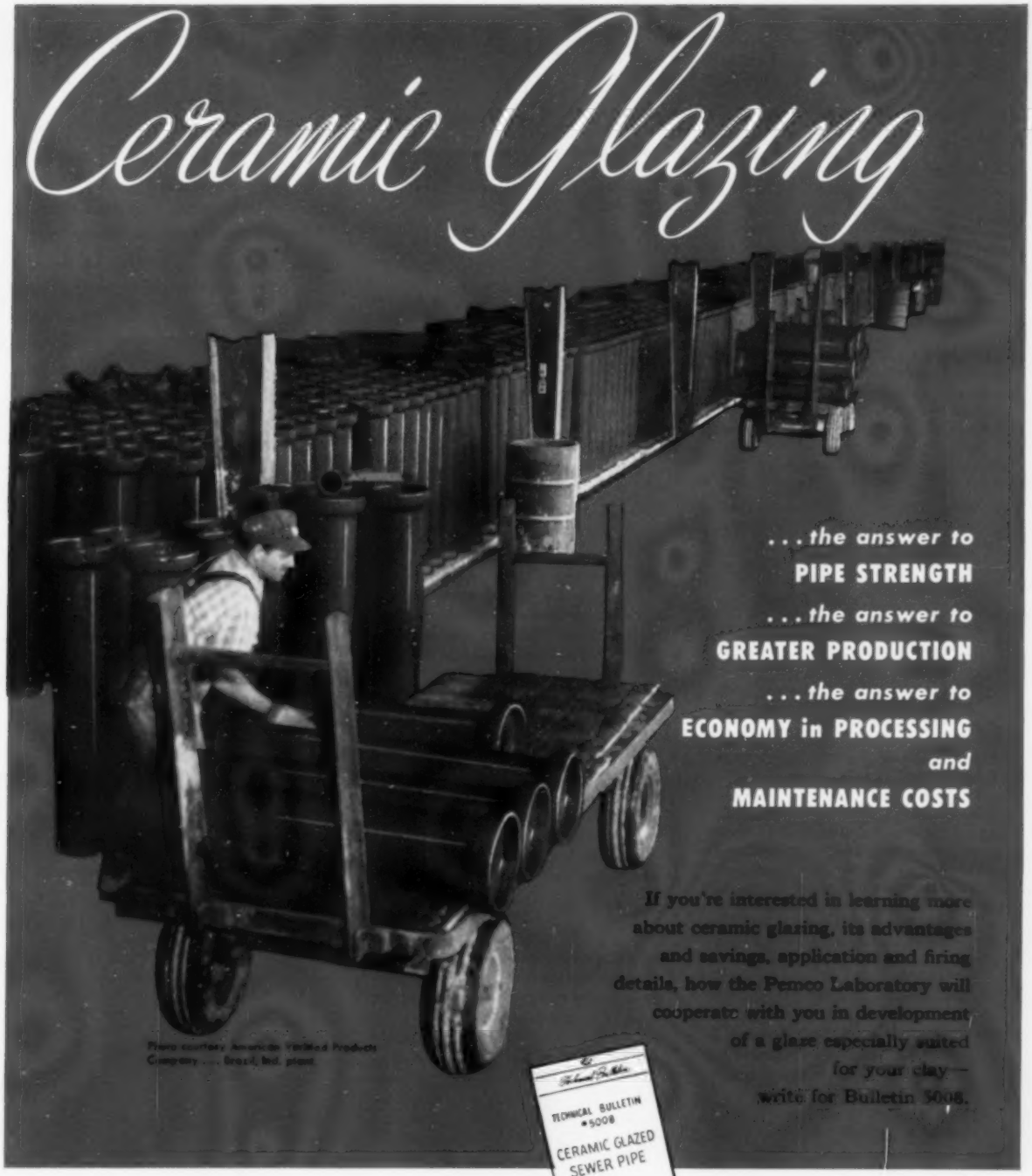
Provision for Flashing

The kiln is also equipped with provisions for flashing the brick, however to date this featured has not been used. All of the blends and colors of brick have been achieved by careful proportioning of the raw materials.

The cooling zone of kiln is 12 car lengths long. Here again, recirculation plays an important part in the

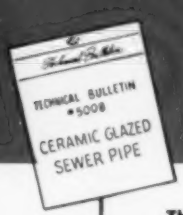
(Continued on page 56)

Ceramic Glazing



. . . the answer to
PIPE STRENGTH
. . . the answer to
GREATER PRODUCTION
. . . the answer to
ECONOMY in PROCESSING
and
MAINTENANCE COSTS

If you're interested in learning more about ceramic glazing, its advantages and savings, application and firing details, how the Pemco Laboratory will cooperate with you in development of a glaze especially suited for your clay—write for Bulletin 5008.



50 YEARS OF RESEARCH AND A FLAME

PEMCO

BALTIMORE 24, MARYLAND

This bulletin explains the importance of using a glaze especially suited for specific clay characteristics. It is in this area that Pemco is most able to help you—to make sure that, with the proper glaze, you get all the advantages of ceramic glazing.

CERAMIC FRITS, INORGANIC PIGMENTS, VITRIFIABLE GLASS COLORS

Circle Service No. 36

Clay Pipe – Greatest Challenge

We Look to the Future with Confidence

G. A. Robinson
President, NCPMI

Never before has the clay pipe industry faced a greater challenge and a greater opportunity than now. The industry—through National Clay Pipe Manufacturers, Inc., and the regional associations—is gearing itself to meet the challenge and to capitalize on the opportunity.

The population explosion in American towns and cities has placed such a strain on existing sewer facilities that the U. S. Public Health Service has

become alarmed over the threat to the health of the people.

It is estimated that $2,000,000,000 will have to be spent on construction of new facilities and remodeling of old ones just to take care of the overload—and that does not include any provision for taking care of future needs arising from continuing population growth.

Former Secretary Arthur S. Fleming of the U. S. Department of Health, Education and Welfare made the statement that if steps are not taken to provide adequate sewage systems "we may be confronted with a crisis of such gravity as to jeopardize the further growth and development of many areas of the country and even the health of millions of people."

More recently President Kennedy submitted a natural resources protection program in which he called for increased federal aid to communities building waste treatment facilities.

As people become more aware of the threat to public health from the lag that has occurred in sewer construction, I am confident they are going to do something about it—by putting pressure on governing bodies for action and by voting approval of sewer bond issues.

It is my opinion that in the period ahead we will see city after city undertaking large scale projects to modernize their antiquated and inadequate sewer systems. Here in Washington, within a stone's throw of NCPMI headquarters, a multimillion dollar sewer separation project has just gotten underway, pushed ahead so as to stay in advance of new highway construction. The same thing will be happening in cities all over the country.

The clay pipe industry has the responsibility for seeing to it that lifetime vitrified clay pipe is used in laying the new sewer lines. Of course we have a selfish interest in this. But the public interest is involved, too. The use of inferior materials, even when cheaper at the outset, is a waste of public monies because they prove to be the most expensive in the long run. The record of failures in sewer lines where other than vitrified clay pipe was used bears this out.

What is the industry doing to meet this challenge? We are moving on several fronts. For one thing we are expanding our program of research and testing at the NCPMI Laboratory at Crystal Lake, Ill. An addition is being made to the laboratory building to provide space for the enlarged Ceramic Division. Along with this will be increased effort to give widest possible dissemination of information on the laboratory's findings. Whenever we tell the clay pipe story, we intend to be fully armed with facts and proof for our statements.

NCPMI has launched a hard-hitting advertising and public relations campaign. In this campaign our objectives will be both to stimulate public awareness of the problem of inadequate sewer systems and to tell in factual and authoritative manner why vitrified clay pipe is superior to competing products.

The actions of NCPMI are designed to support and implement the activities of the individual companies that make up the organization. I find our industry's leaders keenly aware of the challenge and opportunity facing us, and ready to move ahead aggressively. Many companies already have expanded and modernized their facilities to be prepared for increased business. Others are now making plans to do so.

I view the period ahead with great optimism for the clay pipe industry. We know we have a fine product which is recognized by engineers as the superior material for industrial wastes and sanitary sewer systems. The need for that product is increasing tremendously. With these basic ingredients for success—and with the progressive spirit that pervades the industry—we look to the future with confidence.

Never before has the clay pipe industry faced a greater challenge and a greater opportunity than now. So opens the statement of one of the participants in our forum on these pages, and nothing could state the case more clearly. While recessions and competing materials might always be with us, the clay pipe industry nonetheless stands on the threshhold of its greatest era. Why? Improvement in the construction situation, continued research, superiority of product, and determination on the part of clay pipe manufacturers are but a few of the factors. Here are comments from association executives. Next month, messages from clay pipe plant operators.

Recognize Need for

Robert Scott
Vice-President and
General Manager
Clay Products Association

Business conditions in the area covered by the Clay Products Association run from one extreme to another. In some areas, the recession is quite real . . . in others, business is slowly but surely climbing to a new all-time high. I will leave the analysis of why this

is true to the economists. My main concern is, "How does this affect the clay pipe industry?"

The recession, which has adversely affected many industries, has not bypassed the clay pipe industry altogether. Business in general is good but there

Finest Opportunity

Research Points the Way to the Future

A. J. Reed
Vice-President, NCPMI

Clay pipe industry research is dedicated to the development of a constantly improving product to serve a constantly growing America.

The research of the past 10 years

has met the need of what must be done for today's market. The industry must now consider research from the standpoint of what should be done in order to meet the needs of the years ahead. This requires a longer range view from the standpoint of product improvement through fundamental research rather than applied research. The clay pipe industry, as well as the entire ceramic industry, has always adhered to conventional methods of manufacture and research to date has been directed toward an improvement in these conventional methods.

But the research work of the future must be directed toward new and perhaps unconventional methods which will make secure the industry's position of leadership in the field of sanitary piping materials in the years ahead.

In viewing the business outlook for the clay pipe industry in the next few years, the part that research will play must be considered. Research has become an increasingly important activity in the clay pipe industry during the past 10 years, both in individual companies and the industry as a group.

Throughout the industry, the cost of maintaining and supporting research programs is being recognized as an investment which pays dividends. Virtually every manufacturer of vitrified clay pipe today can point to some important phase of his operation that resulted from an original investment in research. These developments are continuously improving the quality of the product and meeting the ever-increasing requirement for lower "in the trench" installation cost.

Despite the product and method improvements of the past 10 years, the surface has only been scratched. Every new development leads the industry into another area where research is required in order to maintain a continuing program of quality and performance improvement.

The jointing research program is a case in point. Today the industry is manufacturing prefabricated joints which exceed every specified performance requirement. New developments in the field of jointing promise to lower further the manufacturing cost and increase the performance level.

Today, the long range outlook for the vitrified clay pipe industry is tied inseparably to research. New ideas are constantly being advanced by the research-minded people throughout the industry.

The road ahead is clear. The vitrified clay pipe industry has developed a confidence in the value of research which will result in a continuing program of quality and product improvement in the years ahead.

Better Sanitation

have been times in the past year when our industry felt the effects of a slowdown in other industries.

Two primary factors affected our business during 1960 . . . the increase in bond interest rates and the decline in the number of new housing starts.

Despite the adverse effects of the above, shipments of clay pipe continue at a better than average rate. This may very well be due to conditions which are peculiar to our type of industry and to our particular section of the country.

Quite a large percentage of the shipments of clay pipe today are to fill orders placed some time ago . . . many of them before the recession reached its present proportions. There is a fair size time lag between the date of a municipal bond issue approval and the actual date of construction. Thus, some of our business today is coming from orders booked three to six months ago.

Sanitary conditions in many communities in our area have reached the critical stage. Construction of sanitary sewers has not kept pace with the exploding population in suburban communities. Therefore, when bond issues are proposed, people are more inclined than in the past to approve them because they can see (and understand) the urgency of extending sewerage facilities.

Jointing Improvements Aid Pipe Progress

J. J. Stein
Secretary-Manager
Clay Pipe Institute

The volume of vitrified clay pipe shipped by members of the Clay Pipe Institute during 1960 represented a slight increase over the tonnage shipped during 1959. The expansion programs undertaken by many of the cities and towns in California, Arizona and Nevada have been responsible for the high rate of shipments during the past year. The necessary sanitary sewer facilities are now provided for the anticipated resumption of subdivision development.

The decline in housing starts is reflected in the curtailed demand for small diameter pipe. Many projects, however, have been held up pending lower financing charges and it is now expected that this market will resume its former pace during the spring and summer months. The availability of funds and at attractive rates should stimulate considerable activity in housing within the area served by members of the institute.

General business conditions appear to be improving and it is estimated that the vitrified clay pipe volume in 1961 will approximate the previous year's shipments. The population growth in California, Arizona and Nevada continues at a high level and the need for sanitary sewers parallels this increase.

The prospects for increased clay pipe sales in the years ahead look promising due to the improvements in the product itself and the universally favorable acceptance of the flexible compression joint now available with vitrified clay pipe. The percentage of sales of vitrified clay pipe with the flexible compression joint is constantly rising, which is the best possible evidence that the designers, specifiers and contractors are convinced that this method of jointing represents a tremendous forward step in providing permanent, economical sewer lines with joints to match.

(More comments next month)

D. Everett Morgan, Cedar Heights Clay Co., congratulates prize-winning paper authors, C. Ekedahl, Illinois Clay Products Co. and M. J. Scavens, Harbison-Walker Refractories Co.

THE REFRACTORIES INSTITUTE
FOUNDED 1951

Discuss

TRI

W. A. Spence, Harbison-Walker Refractories Co.; D. J. Bowers, Battelle Institute; G. Robert Gast, Cedar Heights Clay Co.; George T. Needham and George D. Needham, Oak Hill Foundry & Machine Co.

Part of the 188 members and guests of the TRI.

Seen at the New Castle Refractories plant are Frank Lamonica, The Bonnot Co.; E. A. Williams, North American Refractories Co., and J. George Seanor, The Bonnot Co.

The Pick-Ohio Hotel in Youngstown, O., was the scene of the 12th T.R.I. Factory Operators Meeting on April 6 and 7, 1961. More than 188 refractories plant operators and suppliers to the industry met to discuss refractory production problems and how to increase the operating efficiency of the plant production personnel. The theme of the 12th meeting was the proper handling of employee grievances and arbitration procedures.

The first day's sessions consisted of showing a movie, "Progress in Modern Basic Refractories," which was furnished by Kaiser Refractories & Chemicals Division. The movie illustrated the latest improvements in the manufacture of basic refractories and also illustrated many of the new uses to which this product has been put. After the showing of the film, the 188 members attending the meeting were taken through the Kaiser Co.'s basic refractories plant at Columbiana, O. The Columbiana installation, originally completed and dedicated in 1956, recently completed an expansion program with the addition of two more presses and additional crushing and grinding facilities.

Tour Plant

The afternoon of the first day's sessions saw the operators tour the New Castle, Pa., plant of the New Castle Refractories Co. This company is engaged in the manufacture of specialty refractories, with the latest addition to the company's products being silicon carbide refractories. The latest methods of forming silicon carbide refractories were noted with extreme interest by all the group attending.

On the second day of the meeting, the subject of employee grievances and arbitration procedures was introduced by R. J. Wagner, industrial relations manager of the Harbison-

Employee Grievances

MEETS

Walker Refractories Co. Wagner pointed out to the group that the unions have found out arbitration is a useful tool. He cited also the few strikes that have existed in the refractories industry over the past two decades. This can be attributed directly to the fact that arbitration has become more and more accepted as a means of settling disputes between employee and employer. He mentioned also the number of arbitration cases which have risen sharply since it became an accepted method of handling employee grievances.

Points Out Purpose

Wagner then pointed out the purpose for having this subject as the theme of this meeting. Factory operators in union operated shops must be familiar with the procedure for handling employee grievances before any case goes to arbitration. Wagner recommended that if possible, all grievances should be settled before they go to an arbitrator, since, even though very satisfactory, it is also very expensive.

A full understanding of what arbitration is and how it works was then explained to the people attending the meeting, by showing a film "Arbitration In Action". A sample case of an employee grievance was shown in the film and the procedure showed how the case was settled. The audience was given a chance to act as the arbitrator and allowed to give their decision before the actual decision of the real arbitrator was revealed. About 65% of the audience agreed with the real arbitrator's decision in the case, with the remainder about equally divided between more severe or less harsh penalties to the employee.

R. S. Parsons, industrial relations manager, General Refractories Co., then announced the arbitrator's deci-

(*Continued on page* 57)

The chairman's reception saw Dick Hetrick, Kittanning Brick Co. (on piano) accompanying a group in barbershop singing.

James P. Raugh, H. K. Porter Co. was chairman of the Meeting. Here, Raugh is preparing to present the prizes to the winners of the Award Contest: J. L. Rheinheimer, Kaiser Refractories; M. J. Scavens, Harbison-Walker; and Charles Ekedahl, Illinois Clay Products.

Above Francis B. Remmey (with glasses), Remmey Division of A. P. Green, looks over the extruded column during the plant visit of New Castle Refractories Co.

Below, E. E. Slick, Haws Refractories Co.; Richard Whitson, Georgia Kaolin Co., and Avery Newton, Secretary of TRI.

The slinger machine depositing a thick layer of mix on slabs to form a column of clay.

Johns-Manville

They're made by entirely different processes—for example, brick are cut from fired slabs

Insulating firebrick at the Johns-Manville plant in Zelienople can best be described by two words; "They're different". These refractories are different because Johns-Manville makes them by entirely different processes than the standard accepted methods. Probably the biggest deviation in the process is that the brick are cut out of fired slabs.

These slabs are molded, fired rapidly through tunnel kilns and then cut into standard brick and special shapes The standard fired slab will produce five 9-inch straight brick or standard shapes. The advantages of this system are many.

Handling of the slabs throughout the process is easier, a more stable load is possible on the kiln cars with better spacing to permit removal of the burnout and to obtain uniform temperatures throughout the kiln cars. Finally, the use of slabs reduces labor and the trim in the sizing operation. Many special shapes can be produced directly from slabs, which normally would have to be molded and processed as special items.

But the difference goes beyond the method of producing from slabs. It also extends into preparation of raw materials, forming methods, and drying. There are no presses or extrusion machines in the factory. The entire process, while using some standard components, has been developed, engineered and constructed as a joint effort by the research, engineering, and production departments.

The slabs are formed in processes almost foreign to the clay products industry. The 1600, 2000 and 2300 brick slabs are formed in a casting operation, the 2600, 2800 and 3000 brick slabs are molded by a slinger type machine.

In addition to production economies and high quality obtained, the operation provides the flexibility and basis for giving quick shipment of standard and special shapes to its customers.

Raw Materials

Raw materials must be carefully selected for refractories and particularly the amount of iron and titanium.

Major ingredients for all refractories are fireclay, kaolin, sawdust and grog. The clays are unloaded from hopper bottom car or by scoop truck into a cross conveyor and elevated to drop into bins.

Ponderosa Pine sawdust is used because of its high bulking property, which reduces burnout problems in the kiln. Hard wood sawdust can be used, and although the hard woods increase plasticity, this property is not necessary in the processes used. The sawdust is unloaded from boxcars by a pneumatic system to a hammermill, which breaks down the sawdust to the desired particle size. The hammermill uses special type hammers which are more like blades and which have a shearing action as compared to the crushing action normally obtained in a hammermill.

The grog is the trim obtained during the sizing operations. The trim from each type is collected separately for use in the same type brick formula from which it was obtained.

The raw materials, except grog, are stored in large bins, which are equipped with dust collector systems. Grog is collected, transported and stored in Invert-a-Bins (a type of metal tote box holding 88 cubic feet). To empty them they are inverted above a conveyor leading to the use bin. The Invert-a-Bins provide a dust free method of collecting, storing and discharging the fine grog. Dust collectors are located at the finishing operations, raw material storage and batching operations to provide an extremely clean operation.

The dry portion of the mix contains clay, grog, sawdust. Gypsum

Firebrick Are Different!

plaster is also included in mixes for the casting operation. The dry ingredients are weighed out in a batch car and dumped into a skip bucket which delivers them to a paddle type mixer. This mixer provides a homogeneous mixture known as the dry mix.

A major part of the clay is added to the batch as clay slip. This is made in blungers charged by a scoop truck. The slip contains about 40% clay and is screened carefully, before storage in tanks below floor level, which are continuously agitated.

Clay slip is pumped from storage tanks to a rather long pug mill, where it is mixed with the dry mix and additional water. The mix is then fed from the pug mill to a slinger type machine which forms a column from which the slabs are cut.

The slinger is a rotating machine which throws the mix, between the moving side belts, onto Transite pallets, moving on the modling conveyor. The slinger builds the column up to a thickness of 4 to 5 inches. The column passes under a rotary cutter, which cuts the column to the desired height. The trim from the cutter or evener, as it is called in the plant, is returned to the pug mill for remixing. The column proceeds to another cutter which operates like a guillotine, and cuts the column into slabs. The guillotine cutting must be timed exactly right, so that the slabs will be located in the center of the pallet. The dimensions of the slabs are approximately 26″ x 10″ x 3″.

Remove Slabs Automatically

The slabs are automatically removed from the conveyor belt onto dryer cars, which are positioned on the lowervator principle. The dryer cars are somewhat unusual in construction. They rest on legs after being moved to storage with a platform truck. They also have wheels for moving them along the loading truck and through the tunnel dryers.

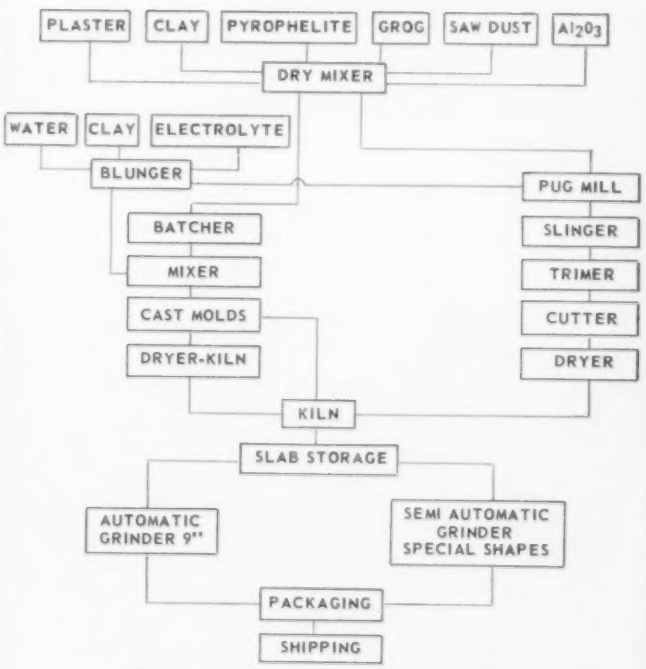
The slinger type slabs are dried in tunnel driers, which operate continuously. Molding is normally on a five day week to supply the driers and kilns for a seven day period.

After the slabs are dried they are removed from the Transite pallets and loaded onto kiln cars for the firing operation.

In this process the dry mix is weighed out from an overhead storage bin on a batch basis. Clay slip and water for the batch are measured volumetrically. These proportioned materials are dropped into a paddle type mixer, and mixed for a period of about ten seconds. The mixer is then tilted and the mix pours over the side of the mixer into a large steel gang mold. This mold will make thirty slabs, approximately 25″ x 10″ x 3″. Since the mix contains about 50% water it flows easily to fill up the mold cavities.

After about fifteen minutes, the gypsum plaster in the mix has ab-

Slabs are transferred from main conveyor to dryer car which automatically lowers on kiln cars.

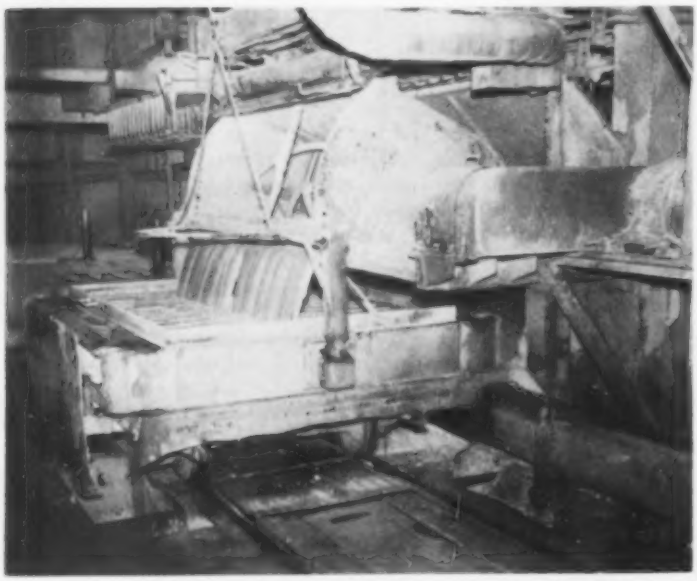


Flow Chart, Johns-Manville Zelienople Plant.

Typical Chemical Analysis—Insulating Fire Brick

Material Composition	JM-20	JM-23	No. 26	No. 28	JM-3000
SiO_2	44.2	44.2	57.4	39.0	29.4
TiO_2	0.46	0.46	1.7	1.25	1.0
Fe_2O_3	38.0	38.0	.8	.5	.71
Al_2O_3	1.29	1.29	39.7	59.0	65.6
CaO	0.16	0.16	0.2	—	0.3
MgO	15.2	15.2	.1	—	0.5
Na_2O	.06	.06	.1	.19	.1
K_2O	.02	.02	.1	.06	.1
P_2O_5	.27	.27	—	—	—
Al (Metal)			—	—	3.6

Corrected for Al_2O_3 equivalent of Al Metal present



Step three in the Johns-Manville process. After 10 seconds mixing the slip is poured into a metal mold.

PROPERTIES (Average values)		TYPE OF JOHNS-MANVILLE INSULATING FIRE BRICK					
		JM-3000	JM-28	JM-26	JM-23	JM-20	JM-1620
Temperature limit		†3000F	†2800F	†2600F	2300	2000	‡2000F †1600F
Approx. density, lb per cu ft		65	58	51	30	28	31
Transverse strength, psi		200	175	140	140	105	80
Cold crushing strength, psi		400	300	210	210	155	120
Linear shrinkage, percent		*0.8 at 3000F	1.0 at 2800F	1.0 at 2600F	.3	—	0.0 at 2000F
Reversible thermal expansion, percent		0.5-0.6 at 2000F	0.5-0.6 at 2000F	0.5-0.6 at 2000F	—	—	0.5-0.6 at 2000F
Conductity (Btu in. per sq ft per F per hr at following mean temperatures)	500F	3.22	2.55	2.22			0.77
	1000F	3.30	2.80	2.44	1.20	1.14	1.02
	1500F	3.37	3.06	2.68			1.27
	2000F	3.46	3.32	2.93			—

*24-hr Simulative Service Panel Test; all others 24-hr soaking period †Back-up or exposed ‡Back-up only.

sorbed sufficient water to cause the mix to set or harden. After the mix has set, the filled mold is picked up by a crane and moved to a stripping machine. A kiln car is positioned at the stripping machine, which is operated to extrude the slabs from the mold directly onto the kiln car. This loads one course of slabs on the kiln car. Two additional molds filled and stripped in the same manner are used to load the car three courses high.

Charged Directly

The loaded kiln car is then charged directly into a high temperature dryer. Two types of drying treatment are available. The one method is to charge directly into a dryer operating between 500° and 700°, depending upon the schedule. This is a single tunnel dryer holding 9 kiln cars, and drying can be completed in 4½ hours, when operating at maximum schedule. After drying, the kiln car proceeds to a tunnel kiln where the firing is carried out.

A newer dryer method, which has just been completed and is expected to obsolete the method described above, consists of drying above 1000° in a combination dryer and kiln. In this method, the kiln car of molded slabs goes directly from the loading position into the combination dryer and kiln, and the slabs progress from the drying to the firing without interruption. This method reduces fuel, cuts down the cycle, and results in an improved control of the operation.

Cannot Stand Drying

Essentially the problem with the casting process is that this material cannot stand any drying of the ordinary type. If placed in an ordinary dryer and raised to say 350°, the cast slabs slump.

In the new drying and firing method, the slabs must be introduced into a temperature of approximately 1000° F. as rapidly as possible after they have been formed. The water has to be converted almost instantly into steam with a tremendous absorption of heat. If the temperature is allowed to drop at any point, cracking results. Therefore, the process has to be continued on a steadily advancing temperature until the firing portion of the kiln is reached.

This involved some very serious difficulties because of the enormous

(*Continued on page* 58)

Use These Aggregates In Making Clay Block

C. G. Robinson
Clemson College

There are many rocks occurring in nature which may be used as block aggregates without intermediate processing. These may be low shrinkage shale, slates, syenites or any other rock with low quantities of quartz and minerals that decompose during firing. The natural rocks may also be lightweight as in the case of porous volcanic rocks, fullers earth and diatomaceous earth.

Many parts of the country have deposits of clays or shales which can be caused to bloat during a prefiring treatment. There are two general prefiring processes: Sintering and the rotary kiln process. These processes produce aggregates that have lower bulk density than natural shale and that are relatively free of shrinkage during subsequent firings.

Produce Slag

Several industrial processes produce slag by products of interest to clay block producers. These slags are prefired and thus essentially shrinkage-free during ensuing firings. They may also be porous and consequently low in bulk density.

Aggregate for block making may be prepared by prefiring clay or shale to make non-plastic aggregate and to eliminate or reduce drying and firing shrinkage. The material may be produced as an added manufacturing process or it may be obtained by crushing rejects from the normal brick-making operation. These materials are distinct from the expanded clay previously described in that no bloating occurs during prefiring.

The Structural Clay Research Foundation has developed a unique aggregate that can be produced from the clays and shales used in brick manufacture. It has the appearance of small bubbles of glass. It is produced in a prefiring operation that eliminates shrinkage for following manufacture and that produces a very low bulk density material. The shape and composition of this aggregate probably gives it the highest strength to bulk density ratio of all the available aggregate materials.

Highly Absorbent

Expanded vermiculite has the lowest weight per unit volume of all the aggregate materials. It is also characterized by being highly absorbent and very soft. These attributes are desirable for one possible forming operation, but objectionable for all other forming processes. As a result, special vermiculite aggregates have been developed for other situations.

A water-repellent vermiculite has been developed to provide insulation as a loose fill for block cells or for wall cavities.

Areas that do not have expanded clay or shale available may find it attractive to produce a medium weight aggregate from their clay and small quantities of vermiculite. This Zonolite medium weight aggregate may be prefired at only 1300°F.

Another Zonolite product is a hardened coated vermiculite granule designed for use in forming in concrete block machines and presses.

Sawdust and other burnouts are perhaps not definable as aggregates but we should remember that they have been extensively considered for the manufacture of light-weight units.

An important consideration in the selection of aggregate materials is cost. I believe it is important to think in terms of volume rather than weight when determining comparative costs of aggregate materials. It is customary to purchase certain liquids by volume. We buy gallons of gasoline, not pounds. Your clay products are sold to provide a certain volume of wall space. A ton of lead brick would not build near as much wall as a ton of clay brick.

The effectiveness of an aggregate in a clay block mix depends on the volume proportion of aggregate to other materials. Evaluation of the cost of aggregate materials is best made when the price is expressed in terms of volume—so many dollars per cubic foot or cubic yard rather than per pound or ton.

I believe it is also important to consider two different manners of expressing the bulk density of aggregate materials. Consider the possibility of carefully sawing out a one cubic foot solid lump of shale from a quarry. The weight of this lump might be 120 pounds and its solid lump bulk density would then be 120 pounds per cubic foot.

Carefully Crush

Consider next that we carefully crush this same lump to obtain all ¼″ size fragments. If we were to pour these fragments into a one cubic foot measure we would find that it would fill the measure and that we have enough left over to perhaps half-fill a second one cubic foot measure. The original cubic foot of shale now occupies 1½ cubic feet of volume because there are void spaces left between the shale fragments. We could now obtain a new measure of

This report was presented at the Second Clay Block Conference sponsored by Brick & Clay Record, March 23 and 24, 1961 by C. G. Robinson, Clemson College. From time to time we will publish the other reports that were also presented.

The paper published here is broken down into subtopics to facilitate concise understanding of the points brought out. Topics covered here are: Types of aggregate available; Costs and measures of aggregates; Functions of aggregtes; Design of aggregate-clay mixtures.

bulk density, the bulk density of the loose shale particles vibrated into the one cubic foot measure. We would find that the same shale would now give a bulk density reading of 80 pounds per cubic foot.

The distinction in these two methods of measuring bulk density is important to the making of clay block. We may reduce the weight of a clay block or a concrete block by so designing the mixture as to leave voids between the aggregate particles in the finished block.

We may also be disappointed in the weight reduction obtained from the use of a given aggregate because if our block mixture is designed to fill all the voids between aggregate particles. It would be more instructive in this latter case to know the actual lump bulk density of the aggregate leaving out surface pores and voids between aggregate particles rather than using the loose fill bulk density.

Functions of Aggregates

The aggregates may serve a variety of purposes in the making of clay block, some of the functions being essential to successful manufacture while other functions may add desirable characteristics but not be essential to manufacture. I would somewhat arbitrarily suggest that the essential functions of aggregates are to provide A. Formability B. Dimensional Control. The secondary functions of aggregates are: C. Provide Reduction in Unit Weight D. Increase Thermal Insulation E. Improve Accoustical Characteristics F. Provide Desirable Surface Textures G. Provide Nailable Units.

Many forming operations will not work satisfactorily with feed materials of all-clay. The extreme illustration is probably a concrete block machine. Stocky clay is poison to this equipment. It was designed to work with concrete and the only way it can be used to make clay block is to provide a feed mixture that will fool the machine into thinking it is working with concrete. Mixtures containing high percentages of aggregate material will do this. The aggregate provides formability.

Concrete blocks are made to close dimensional tolerances. This is a very attractive feature and clay block must have a similar virtue if they are to successfully compete with concrete.

Dimensional control in clay block may be obtained in several ways. They may be manufactured under a highly controlled process including firing in a small cross section kiln. They may be ground to size after firing. The most pertinent method to our topic is to accomplish dimensional control through the reduction in manufacturing shrinkage that results from additions of non-shrinking aggregate.

Reductions in unit weight offer many attractive advantages such as saving in transportation costs and building costs, improved insulation value and perhaps better mason acceptance. Aggregates can serve to reduce unit weight, the amount of reduction depending on the type and quantity of aggregate. It is interesting to consider that clay products to begin with are lighter in weight than heavy aggregate concrete on an equivalent basis. Still further reductions in weight of clay products can be obtained through the use of lightweight aggregates.

Reduction in Strength

The reduction in weight is usually accompanied by a reduction in strength. There are exceptions to this statement but it suggests an important alternate or companion method of reducing weight. This method is to use thinner but stronger wall structure in the block. Insulating value can later be added to this unit by filling the voids with loose fill insulation.

Aggregates may be added to provide desirable insulating factors or accoustical characteristics. The results obtained will vary with the type and quantity of aggregate.

The acceptance of clay block may depend to a large extent on their surface texture. A variety of textures from rough, to grainy, to sandy to smooth may be obtained by the use of aggregates. The major factors in determining surface texture are the particle size distribution of the aggregate and the quantity of aggregate.

Surface texture is also an important consideration if it is planned to apply a glaze or engobe to the block surface.

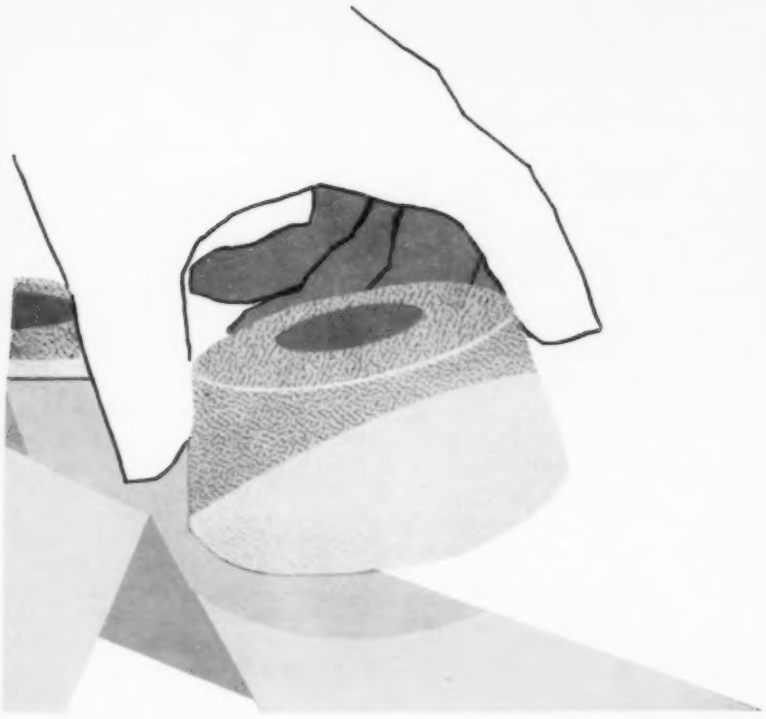
Aggregate-Clay Design

A book could be written on this topic but I believe our present purpose can be fulfilled with a short comment on specifications for a successful aggregate.

The particle size distribution of the aggregate is an important variable of manufacture. The best size distribution should be determined for each manufacturer.

The aggregate should be thermally stable and non-shrinking up through the maturing temperature of the block.

The bond clay and the aggregate should be compatible. The bond clay should harden and mature at temperatures lower than those required to cause shrinkage in the aggregate. The bond clay should strongly adhere to the aggregate and yet be free from damaging reactions with the aggregate. The drying and firing shrinkage and the cooling contraction of the bond clay should be compatible with the aggregate.



Grinding wheels have been divided into six stacks in the box with spaces left between each stack. Sawdust has just been blown into the space, providing a flexible cushion. A telescoping lid is then placed on the box and it moves down the conveyor to the steel strapping station.

Cut Costs, Protect with Corrugated Packaging

Several years ago, the Simonds Abrasive Co., of Philadelphia, Pa., began experimenting with corrugated packaging in an attempt to cut down on the shipping and handling costs of its chief product, abrasive grinding wheels. In addition, it sought means for giving more protection to the wheels during shipment and warehousing. Now, the company has completed its changeover from wood to corrugated board, except for one special heavy-duty package.

From a cost-saving standpoint, the results have been outstanding. Shipping weight has been cut 50%. Weight savings alone for the first eight months of 1960 were about 129,000 pounds. Shipping space savings run from 30-40%. Within the Simonds plants, corrugated packaging has resulted in decreasing labor and handling time 11% over former methods.

The second objective—giving extra protection to the contents—sought by Simonds and the Hinde & Dauch development engineers who were consulted on the job, also appears to have been secured. While at first glance it might seem that grinding wheels are tough customers, they can be damaged. In use, hours of grinding can only wear them down, but shock and impact absorbed in shipment can seriously undermine their effectiveness by causing tiny chips or cracks that are multiplied a hundredfold when put in use at speeds of up to 9,500 surface feet per minute. Severe cracks can result in a wheel flying apart at high speeds, turning it into a lethal weapon to the operator. It was extremely important, therefore, that the savings in shipping and handling costs gained by the switch to corrugated packaging not be offset by an upswing in damage to the wheels.

Comparative damage figures for wood and for corrugated packaging are being carefully recorded by Simonds. Actual figures have not been released yet, but the company states that it is obvious that the corrugated packaging is doing a superior job of protecting their products.

Reduce Package Designs

Simonds has also been able to reduce the number of package designs needed through the application of scientific corrugated packaging. Development engineers of Hinde & Dauch, working with Simonds production personnel, came up with four basic packages. Three utilize corrugated board exclusively while the fourth combines corrugated board with wood to accommodate the company's largest and heaviest wheels.

The first of the four basic packages was designed for maximum ver-

These die-cut corrugated "butterflies" separate and cushion each wheel within the box. Once the telescoping lid is placed on the box and a single steel strap applied, it is ready for shipment.

At this station, a scored and slotted die-cut corrugation is folded into a special four-celled partition unit used to package Simonds "cup" grinding wheels.

Above, a fully packed box of "cup" grinding wheels is here shown prior to lidding and steel-strapping.

Below, the company's largest grinding wheels, often weighing as much as 1,000 pounds when packed, are cushioned from abrasion and in-transit shifting damage by corrugated sheets placed between each wheel and fitted around the sides of the pallet. A corrugated cover is then secured by steel-strapping and this heavyweight is ready for shipment.

satility, accommodating a wide range of wheel sizes and adapting itself to small or large orders. The package is a regular slotted body with two telescoping caps. Well within the requirements of Rule 41, Section 8K of the Uniform Freight Classification regarding telescoping boxes, it is adaptable to 15 different sizes of Simonds grinding wheels.

The wheels are placed in stacks, with space left between each stack. The spaces are filled with fine sawdust or shredded paper. The lid is placed on the box and the completed package is firmly bonded with two steel straps.

Take Advantage

This strapping takes advantage of corrugated board's flexibility by tightening the box walls against the grinding wheels. The result is a firm pack that prevents shifting during transit. The grinding wheels can't rub together, so abrasion damage to the product and its label is prevented.

A second telescope design box is used for parcel post and common carrier shipment of relatively small grinding wheels. It employs an array of ingenious interior packaging pieces to guard against shipping hazards.

Three different size wheels (6", 7", 8") can be packed interchangeably or exclusively by using corrugated "butterflies" (die-cut sheets of corrugated board with the die-cut forming a lock into which each wheel fits, effectively separating the wheels from one another and positioning each wheel firmly within the container). The positioning of the die-cut pieces is such that when popped up they fit snugly against the outside rim of the 6" and 7" wheels. The 8" wheel is laid flat on top of the sheet and is then placed in the box, where it fits snugly against the interior walls. The same size "butterfly" sheet serves interchangeably for all three wheel sizes.

Single Piece of Strapping

Once the box is completely filled, the telescoping lid is applied, the box is bonded with a single piece of steel strapping. This, again, gives a tight yet flexible pack which makes maximum use of this bare minimum of interior packing pieces. Simonds used to ship six of these smaller wheels in a makeup package which did an inferior job of product protection. They are now able to pack 10 wheels in a single, maximum protection corrugated container.

Another Novel Concept

Another novel H & D interior packaging concept safeguards the company's cup grinding wheels in shipment. A scored and slotted die-cut corrugated sheet is folded into a four-celled partition unit, then positioned in the same telescoping box as used for package #2. Four cup wheels fit into each partitioned layer, with the number of layers determined by the customer order. A single steel strap is used to secure the box lid.

Simonds packages its largest and heaviest grinding wheels in a combination corrugated and wood pallet-pack, the fourth package in the new Simonds packaging setup. In this operation, the pallet is placed on the floor and the huge grinding wheels are arranged on it in an upright or edge-wise position. A corrugated sheet is placed between each wheel. This sheet keeps the wheels from bumping together in transit and also holds the wooden side-guards in place.

Once the wheels and corrugated sheets are in place—held in position by the side-guards—two other corrugated sheets are fitted around the sides. Then, a corrugated cover goes on and three steel straps are fastened in place, one in a lengthwise direction and two running crosswise. It's not unusual for one of these big packs to weigh half a ton.

Carry Complete Range

These four standard packs carry the complete range of Simonds grinding wheels to users throughout the world. All Simonds shipping containers bear the National Safe Transit label and, of course, are tested in accordance with the prescribed NST regulations.

Simonds Abrasive Company is one of the largest manufacturers of grinding wheels and abrasives in the country. In addition to its home office and plant in Philadelphia, Simonds operates additional converting plants in Los Angeles and Brockville, Ontario and makes its own abrasives at an Arvida, Canada, plant location. It is a wholly owned subsidiary of Simonds Saw and Steel Company.

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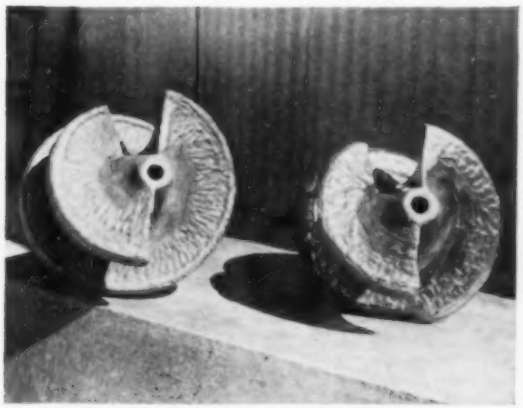
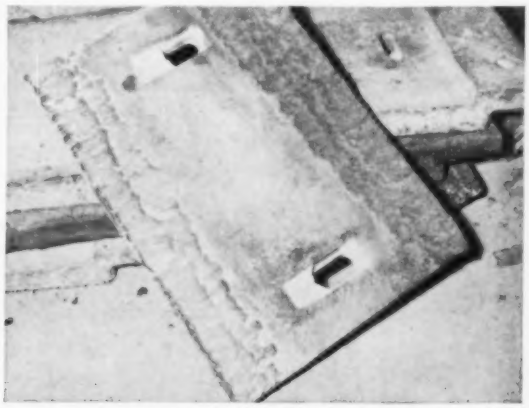


PUG MILL POINT AUGERS *were lasting less than 1 week. Hard-faced with Stoody 21, service life has jumped to 3 full weeks. These augers can usually be rebuilt at least 5 times. At left as hard-faced; at right as worn.*

BARREL LINERS *normally wear out in three months. Stringer beads of bare Stoody 21 were applied in checkerboard fashion to catch and pack surface with mix. Liners now last over a year.*

EAGLE CRUSHER SEGMENTS—*These and other types of crushing equipment all benefit by covering wearing areas with Stoody alloys. Part life is economically extended and full crushing efficiency retained.*



MULLER PLOWS—*Subject to severe abrasion in grinding operations, two or three passes of Stoody 21, applied to edges retard wear, hold corners to size and maintain overall operating efficiency.*

Circle Service No. 37

Gleason . . .

(*Continued from page* 42)

operation of the kiln to provide careful and proper cooling of the fired brick.

As in the rest of the plant, the kiln features efficiency along with simplicity. There is one control thermocouple in the tunnel kiln which is located at the maturing end. A 28-point precision indicator manufactured by Minneapolis-Honeywell is used to indicate the temperatures at various other points in the dryer and kiln. Indicating lights in the kiln control room are used to aid the operator in his duties. When an electric motor on a fan is inoperative, a light which is electrically interlocked to that motor is then extinguished.

The fired brick are taken from the kiln and transferred onto one of two fired storage tracks, each twelve cars long. At these locations the brick are unloaded with a fork truck equipped with Bickerstaff forks. 100% of all the unloading is done with this method. Plans for the company's future include an automatic packaging machine.

90% of all shipments are made by truck, though the company's new plant is located on a siding of the L & N railroad. This works out well with the parent company's delivery method in Western Tennessee. As a truck from the Nashville plant delivers a load of red brick to the area, the return trip can then be made with a load of light or buff brick back to the Nashville area, preventing any "dead-heading" by the trucker.

Future plans for the company include the erection of a second tunnel kiln and the auxiliary equipment necessary to operate the kiln. Other contemplated installations include an automatic packaging machine which is now being installed as this article goes to press; the possible installation of a grinding and screening circuit, should one be necessary; additional covered clay storage facilities; and a covered finished storage area.

Provisions are now provided for the storage of 5 million brick, and it is hoped to pave this complete storage area in the future also. Additional clay land adjacent to the plant site has been leased, should the company ever decide to do its own mining.

Efficiency and simplicity are the theme of the entire plant layout of Gleason Clay Products Co. The editors of BRICK & CLAY RECORD thought it might be of interest to the readers to see how this company utilizes the 33 men employed to make the 50,000 brick per day, seven days per week.

1 Superintendent	6 Hackers
1 Foreman	4 Kiln Firemen
1 Office Personnel	2 Fork Lift Truck Operators
2 Truck Drivers	6 Kiln Car Unloaders
1 Maintenance Man	1 Strapping Man
1 Loading Foreman	1 Car Repairman
2 Front End Loader Operator	1 Janitor
1 Grinding Room Operator	2 Utility Men
1 Mill Room Operator	33 Total Employment

new markets! new profits!

with "hand dressed"

BRICK

by **PITCHMASTER**

Here is a machine that incorporates the skills of the craftsman with more production muscle than twenty men.

Reach NEW markets, NEW profits by offering a NEW brick with greater depth of beauty.

- Culled brick can be converted to premium priced material.
- Fifty lineal feet of "Hand-Dressed" brick per minute.
- Instant adjustment to material height and depth of pitch. No limitation on material length.
- All material is conveyed through machine in a continuous flow by belts and rollers. Machine maintenance is reduced to the absolute minimum.

No other comparable machine in the field today will match the productivity and dollar profit that PITCHMASTER affords to make it a common sense investment.

NEW AND REVOLUTIONARY IN DESIGN! TESTED AND PROVEN

Names of satisfied users furnished on request

$4000.00
F.O.B. FRANKFORT, INDIANA

E & R MFG. CO. INC.
FRANKFORT, INDIANA

Circle Service No. 38

TRI . . .

(Continued from page 47)

sion and gave the audience some pointers on how to correctly present their company's case in an arbitration situation. Parsons warned that the employee is assumed innocent in all cases until proven guilty and in all cases, the employer must prove that the company stand was the correct one. In all cases the arbitrator who is selected by the Federal Government, selects the punishment to suit the crime if the employee is proven at fault.

Use Written Evidence

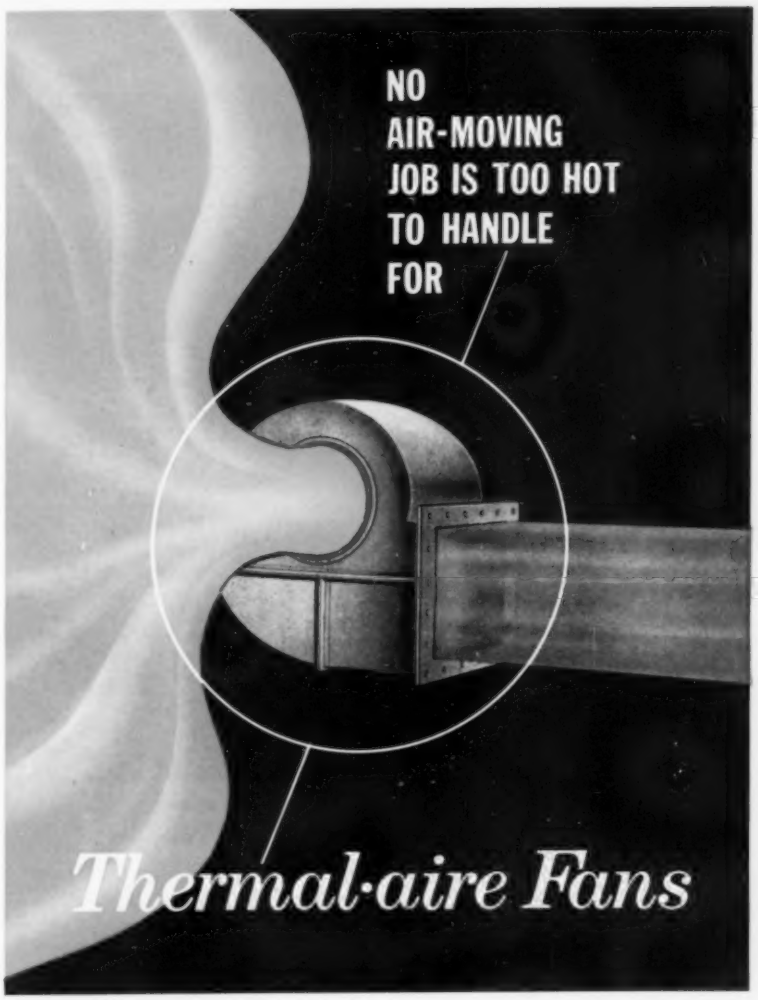
Parsons then told the audience that the arbitrator prefers written evidence of all preceedings rather than oral histories. For this reason, an oral warning given an employee stands little chance of being considered good evidence in an arbitration case. Parsons pointed out the necessity of a company establishing written warning records, so that the employee's case history along with his personnel record, may be properly presented to the court.

Parsons also pointed out that the burden of proof rests entirely upon the employer in any arbitration case. In most instances, an employer, finding an employee unsuitable for a specific job, must try and fit the man into another position before he can be released from the company's employ.

Industrial relations managers from six refractories companies gave specific instances of disciplinary actions and arbitration cases which their com panies had recently experienced. These six companies and their representatives included: H. K. Porter Co., Inc., L. C. Jenkins; Walsh Refractories Co., R. D. McGee; North American Refractories Co., D. T. Quigley; Hiram Swank's Sons, T. K. Saylor; Kaiser Refractories & Chemicals Division, B. C. Thompson; and Basic Inc., T. A. Williams.

The afternoon session of the second day was devoted to the presentation of awards to the authors of the prize winning papers in the TRI's 1961 Award Contest.

Several of these prize winning papers will be published in future issues of BRICK & CLAY RECORD.



Does your operation involve temperatures up to 2000°F.? Do you use ovens, furnaces, kilns, dryers . . . circulate or exhaust air, fumes, dust or gases? If so, chances are Thermal-Aire Fans are working for you. Why do leading manufacturers of air-moving equipment specify and install Thermal-Aire Fans for high-temperature, air-moving applications?

QUALITY OF ENGINEERING: All Thermal-Aire Fans are engineered to meet precise specifications for standards of performance, and carry the Certified Ratings Seal of the Air Moving and Conditioning Association (AMCA).

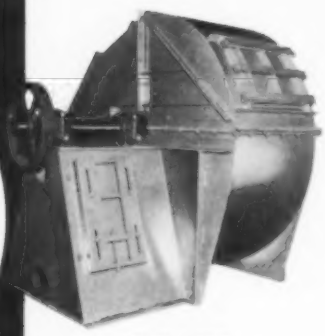
QUALITY OF CONSTRUCTION: All Thermal-Aire components are constructed of prime, heavy gauge materials developed especially for high-temperature application – and field-proved by many years of on-the-job service.

CONTINUING RESEARCH: Specialists in air moving devices since 1879, Garden City maintains a modern, fully equipped laboratory for continuous product development and improvement. Example? Garden City's exclusive Air-Cooled Shaft. Keeps bearings cool. Eliminates circulatory systems. Prolongs fan life.

Write for Bulletin 960
Garden City Fan & Blower Co.,
807 Eighth St., Niles, Michigan.

Circle Service No. 39

ROBINSON FANS



TYPE J FAN
Forces draft, exhausts heated air, recirculates air in kilns and dryers.

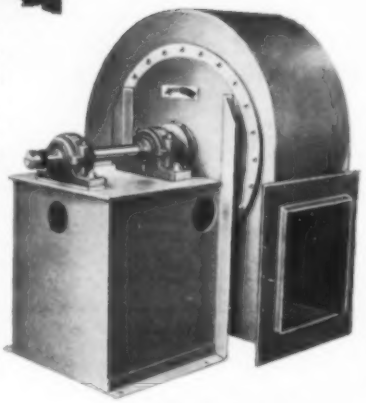
BOOST Ware Tonnage, *CUT* Fuel and Power Costs

HI-DRAFT FANS
For periodic down draft ceramic kilns.

Robinson Fans and Blowers are custom-designed and built to complement your equipment . . . fit your production needs. When erosion, abrasion, corrosion, heat, or other severe conditions create air handling problems, call Robinson—we'll plan a system that's properly designed to help you improve tonnage without excessive fuel and power consumption.

Learn about Robinson's round-the-clock Factory-Field Service—a Robinson *plus* that protects your investment.

Write for descriptive literature.



HIGH TEMPERATURE AND DRYER FANS
For recirculating and exhausting systems on kilns and dryers.

ROBINSON FANS • BLOWERS

ROBINSON VENTILATING COMPANY
119 HENDERSON STREET • ZELIENOPLE, PA.

REPRESENTATIVES IN PRINCIPAL CITIES

Circle Service No. 40

Johns-Manville . . .

(*Continued from page* 50)

amount of heat required for the evaporation of the water. The design of the kiln includes four high temperature recirculation fans. These take hot gases out of the crown of the kiln and return them through passages in the side walls of the kiln to chambers located along walls which are provided with a kind of checkwork of openings through which the gases are moved into the loads at high velocity.

Excess Air Burners

The heat is made up by excess air burners installed in the side walls of the kiln in the moving stream of hot gases. Sufficient fuel is burned to maintain the temperature to the desired point of the gases entering the kiln. The capacity of the fans is great enough to recirculate the entire volume many times per minute. An exhaust fan was installed at the entrance of the kiln to take the gases out of the kiln and discharge them to the atmosphere. This draws upon the crown of the kiln just inside the entrance end.

The products of combustion from the high temperature section pass down towards the entrance of the kiln. They are picked up through openings in the crown and side walls of the kiln by a high temperature fan having the ability to be run at 165°F.

Discharged Into Flues

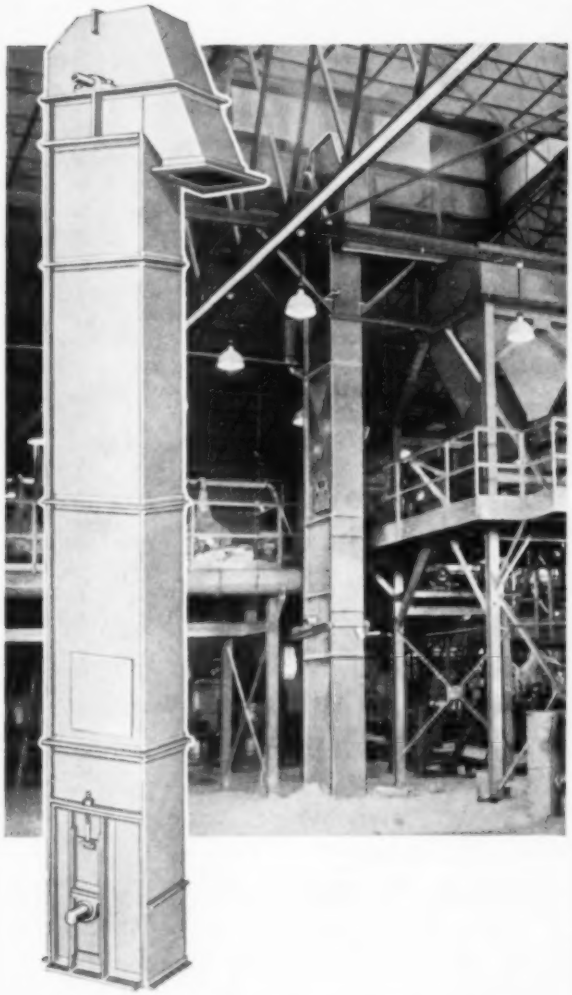
They are discharged into the flues in the side walls of the kiln and out into the ware space, being heated enroute by the excess air burners in the walls of the kiln. They are then picked up by the intake of the next fan and returned again after being heated, and so on down to the entrance. In this way a high degree of recirculation is maintained all through the entrance end of the kiln, a large quantity of heat is added to take care of the evaporation of the water, and the burnout of the sawdust is carried out.

Interestingly with the presence of so much water vapor, no tar or smoke is formed. Evidently some kind of a water-gas reaction takes place in the presence of the great volumes of steam which are being evaporated from the body itself.

(*Continued on page* 60)

EHRSAM for continuous

LOADABILITY!



Engineers who specify conveying systems today demand quality – equipment proven to speed processing and maintain continuous material flow. They look beyond price to design and craftsmanship. An Ehrsam bucket elevator adapts to existing equipment for easy installation. Dramatically increases productivity. Ehrsam frees you from critical design and fabrication costs and bears the responsibility for efficient operation throughout its useful life. Behind quality is management's "no-orphan" policy . . . Ehrsam refuses to abandon one piece of equipment in productive use. Ehrsam supplies a wide range of products to fit your material flow pattern . . . at your desired pace . . . for increased profits. Call one of the seven district offices below for complete information.

The J. B. EHRSAM & SONS MANUFACTURING CO.

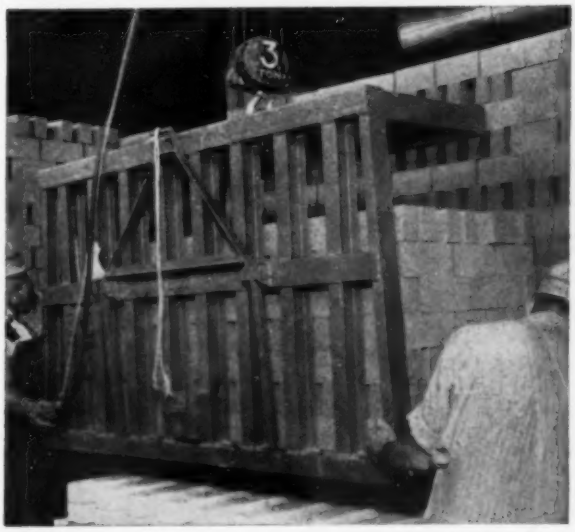
ENTERPRISE, KANSAS

DISTRICT OFFICES | Kansas City, Kansas / Denver, Colorado / Chicago, Illinois
Fort Worth, Texas / San Francisco, California
Phoenix, Arizona / Hastings, Nebraska

EI 2-461

Circle Service No. 41

Make Brick Handling Easy...

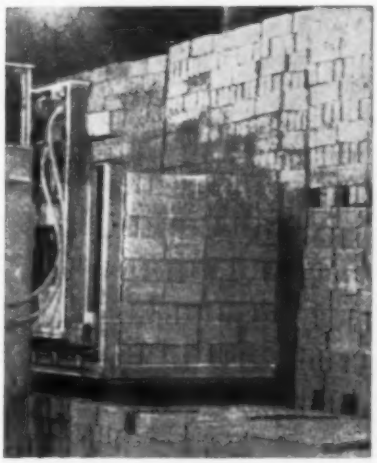


PRIESTER Brick Forks

- **Save Time**
- **Save Money**
- **Save Labor**

Also Priester truck cranes for unloading from delivery trucks. Write for bulletin.

Brick in units of any size are handled by Priester Brick Forks. Automatic operation simplifies and speeds brick handling setting and drawing kilns, loading and unloading trucks and box cars.



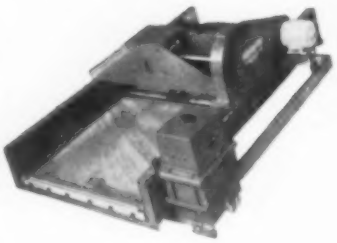
Forks with flap grippers for cored and solid brick. Give service . . . take the hard work out of brick handling. Write today for more information.

BRADNEY MACHINE CO., INC.

Middletown, New York

Circle Service No. 42

Heated Screen! Yes . . . and a Lot More



It isn't *only* the superb Flex-Elex® heating that puts Leahy® screens so far ahead of the field.

Many other things contribute, also, to a standard of efficiency to be found in no other screen.

- Differential Vibration, at 1600 v.p.m., snaps wedging particles loose.
- Direct-connected and oversize bus bars between outboard transformer and jacket completely eliminate bothersome flexible connectors and save power.
- Vibration is confined to the jacket. With the heavy supporting frame for containment only, operating and power costs are cut substantially.
- Jackets are changed in a few moments without usual breaking and remaking of electrical connections.

THE Leahy NO-BLIND VIBRATING SCREEN

— offers —
INTEGRATED HEAT SCREENING

For full information, send for Bulletin 16-EH.

THE DEISTER CONCENTRATOR CO., INC.
The Original Deister Co., Est., 1906
913 GLASGOW AVENUE FORT WAYNE, INDIANA

Circle Service No. 43

(*Continued from page* 58)

In order to carry out this process successfully a most careful control has to be established. As mentioned above, there can be no slacking off in heat or the slabs are cracked, at least on the surface, or in more severe cases right through the entire thickness.

By the time the end of the preheating portion of the kiln is reached, all the sawdust has been burned out and the brick are clean of all core. They are then in a position to be fired to the desired maximum operating temperature without any further problems.

The cast method operates on a predetermined schedule 24-hours a day, seven days per week. It has the advantage of a minimum quantity of material in process and processing time to the fired slab state in less than 24 hours.

Very careful control in the tunnel kilns is required to regulate the burnout of the sawdust and obtain the necessary oxidation of the product. The design of the kilns permits a very high degree of uniformity of firing throughout the kiln car load

(*Continued on page* 62)

Parmanco

SPECIALISTS IN AUGER TYPE DRILLS

NOW . . . GREATER DRILLING POWER

MODEL F-86B
Mounts on any ½ ton or larger truck

A DRILL THAT DOES THE JOB FASTER AT LESS EXPENSE TO YOU!

- Full 6′ twin hydraulic cylinder feed for faster drilling and more pulling power.
- Simplified control. All controls are centralized at rear of drill.
- Time saving clutch. Three speed independent transmission and 10″ spring loaded truck clutch.
- Auger drills to 100 feet.

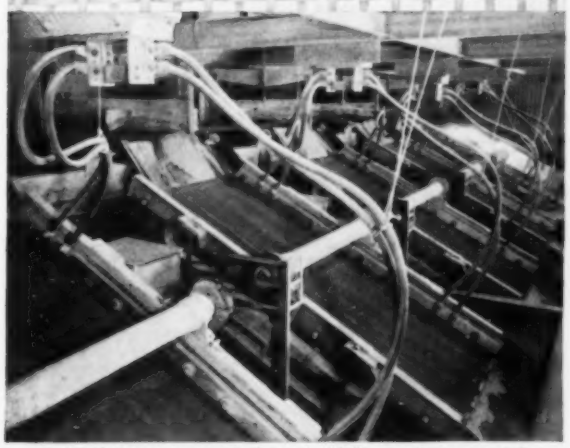
Complete information on request.

MODEL F-86
Jeep mounted

PARIS MANUFACTURING COMPANY
PARIS, ILLINOIS

Circle Service No. 44

this screen stays clean!



Each of these electrically heated "UP" vibrating screens is connected to a 12-kva transformer.

ELECTRICALLY HEATED CLOTH PREVENTS BLINDING OF LINK-BELT "UP" VIBRATING SCREENS

Link-Belt "UP" vibrating screens always work at *full capacity!* Even the "stickiest" jobs can't dampen their efficiency. Electrically heated screen cloth combines with high-speed elliptical vibrating action to maintain high-volume, precise, blind-free sizing.

"UP" screen cloths are heated by a "series" arrangement. Few cables are needed and initial cost is low. The "series" method (originated by Link-Belt) provides extremely uniform heating with a very low current consumption. Other "UP" economy features include overall rugged construction and two-bearing design simplicity.

Available in open and enclosed types, single or double decks, in a wide range of sizes. For full details, ask your nearest Link-Belt office for Book 2777.

LINK-BELT

15,620

VIBRATING SCREENS

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There Are Link-Belt Plants, Warehouses, District Sales Offices and Stock Carrying Distributors in All Principal Cities. Export Office, New York 7; Australia, Marrickville (Sydney); Brazil, Sao Paulo; Canada, Scarboro (Toronto 13); South Africa, Springs; Switzerland, Geneva. Representatives Throughout the World.

Circle Service No. 45

A PQ Soluble Silicate to Fit High Heat Needs

Sodium silicates unmixed with other materials begin to soften at dull, red heat, are plastic at bright red and flow freely at white heat. The high temperature behavior of some PQ alkaline silicates after reaching an anhydrous state is shown below:

PQ Product	Approximate softening point, Degrees F.*	Approximate flowing point, Degrees F.**
N,O,N38, G,SS 65 Pwd.	1200	1545
RU	1140	1455
D,C,GD,SS-C Pwd.	1095	1400

*Viscosity reaches 4 x 10^7 poises

**Viscosity reaches 10^5 poises

Commercial potassium silicates (our Kasil products) have even higher flow points.

PQ specializes in soluble silicates to fill your requirements for either dry or liquid forms. The benefit of a century's experience in silicate manufacture and use is available to you.

1831 - 130th Anniversary - 1961

Soluble PQ Silicates

PHILADELPHIA QUARTZ CO.

1148 Public Ledger Bldg. • Philadelphia 6, Pa.

Associates:
Philadelphia Quartz Co. of Calif., Berkeley & Los Angeles, Calif.; Tacoma, Wash
National Silicates Limited, Toronto, Canada

9 PLANTS • DISTRIBUTORS IN OVER 65 CITIES

TRADEMARKS REG. U.S. PAT. OFF.

Circle Service No. 46

(*Continued from page 60*)
which produces quality at a high recovery rate. Although sawdust originally presented a problem in firing, the firing method was worked out so that the heat produced by the burning of the sawdust, is an advantage in helping to raise the temperature of the ware, and therefore reduces fuel usage at the firing zone.

In the new method of firing the cast type brick using the kiln-dryer combination, considerable research and experimentation was necessary before a successful operation was obtained. In addition to the burnout of the sawdust and control of the decomposition of the gypsum plaster, it was necessary to move very high volumes of hot gases in the dryer, without upsetting the firing operation.

Use Recirculating Fan

This has been obtained with the use of high-temperature recirculating fans in the dryer section. These recirculating fans consist of two 1650° F fans and two 1450°F fans. The exhaust fan is rated at 1250°F.

Another example of the complexity of the operation is the fact that each slab loses 75% of its weight in drying and firing.

After firing, the slabs are stored in the plant according to size and temperature type.

The slabs are ground and cut into brick and shapes by specialty built sizing machines, equipped with dust control equipment to maintain good working conditions and to collect the trim for use as grog.

Completely Automatic

The major machine for producing 9" straight and rectangular shapes is completely automatic from the point where the fired slabs are fed into the machine. In this equipment the slabs pass through two sets of grinders to grind to desired thickness; the slabs are then conveyed between the slitter saws, which cut the slabs to required width, and finally pass through a set of gang slitters, spaced 4½" apart to slit the slabs into five standard brick per slab. Adjustments can be made on the machine to produce either 2½" or 3" series brick in various widths. The largest finished size now produced on this equipment is 24" x 9" x 3". Other equipment is used to produce standard shapes, circle brick and all types of special shapes.

The equipment and operations described are used to produce insulating firebrick in the classes of 16, 20, 23, 26 and 28. In addition, a high alumina insulating fire brick for service at 3000° is produced using the slinger method.

The plant also produces a complete line of castables, gunning mixes, high temperature bonding mortars, and lightweight aggregates.

List of Suppliers

Dust Collectors	— The W. W. Sly Mfg. Co., American Wheelabrator Equipment Co.
Tunnel Kilns	— Swindell-Dressler Corp.
Dryers	— Charles Ross & Son Co., Dry Systems Co.
High Temperature Alloy Fans	— Garden City Fan & Blower Co.
Fans and Blowers	— Robinson Ventilating Co., Claridge Fan Co.
Temperature Control Equipment	— Foxboro Co. Leeds & Northrup Co. Minneapolis-Honeywell Regulator Co.

(*List continued on page 63*)

- **Fluorspar**
- **Magnetite**
- **Chromite**
- **Manganese**

NATIONAL PAINT & MANGANESE COMPANY offers the following advantages:

1) Two producing plants strategically located at Brownsville, Texas and Lynchburg, Va. Complete inventories are constantly maintained at plants and Lindale, Texas warehouse.
2) Technical representatives backed by modern research facilities coupled with 66 years of experience present a backlog of unparalled information that is available to the brick producing industry.
3) Comprehensive quality control beginning with ore source and continuing throughout processing has been established to assure uniform product to customer's specification.

Serving the building brick industry is our business—not a sideline.

NATIONAL "ALWAYS UNIFORM" ESTABLISHED 1894

NATIONAL PAINT & MANGANESE COMPANY

A division of Howe Sound Co., Inc.

810 Park Building
Pittsburgh 22, Pa.

Plants:
Brownsville, Tex.
Lynchburg, Va.
Warehouse:
Lindale, Tex.

CONTRIBUTING ASSOCIATE SCPI

Circle Service No. 47

List of J-M Suppliers

(Continued from page 62)

Burners and Combustion Equipment	— North American Mfg. Co.
Weighing Scale	— Howe Scale Co. Buffalo Scale Co.
Grinding Units	— Besly-Welles Corp.
Invert-a-Bins	— Powell Pressed Steel Co.
Blungers	— Patterson Kelly Co., Inc. Patterson Foundry & Machinery Co.
Vibrators	— Syntron Co. Cleveland Vibrating Co.
Hammermill for Sawdust	— C. K. Williams & Co.
Lift Trucks	— Clark Equipment Co. Elwell Parker Elec. Co. Frank G. Hough Co.
Automatic Carton Sealer	— Standard Knapp Corp.

Columbia Machine has established a new service and parts depot at Orlando, Fla. Columbia Machine's Orlando depot will be open five days a week at 1106 Wood St.

no more downtime to replace connectors...

HANCO FLUX POWER SCREEN HEATERS

transmit power through the air!

With the all new Flux Power by Hanco all mechanical connections between transformer and screen are eliminated. The 0 to 4000 ampere current is transmitted through the air by inserting a conductor through the eye of the transformer. This permits unrestricted vibration, maximum power transmission and true screen balance.

5 YEAR GUARANTEE

★ Dust-tight, waterproof construction
★ Dual voltage, 220/440 volt
★ Use either plain or stainless cloth
★ Anti-magnetic steel side rails

write today for full details

HANCO INTERNATIONAL

CANTON 7, OHIO, U. S. A. — CABLE HANCO

EUROPEAN SALES AND MFG.
HANCO INTERNATIONAL
6 WIBAUTSTRAAT • AMSTERDAM, HOLLAND

Circle Service No. 48

JIFFY-LIFT CAN TRIPLE YOUR DELIVERIES DURING PEAK PERIODS!

Users all over the country report that Jiffy-Lifts earn their own way—and then some.

Jiffy-Lift's efficient engineering and ease of operation insure years of economical, trouble-free service, and make the loading and unloading job as rapid and as easy as possible. You can actually cut your delivery time to one-third over outdated methods. Easily installed and maintained, the Jiffy-Lift is your answer to loading and unloading problems.

- Four Wheel Drive . . . reduces slippage, safer to load and unload on an incline, fast, smooth operation.
- Automatic Trip Release . . . raises cradle while driver readies next cube, automatically stops.
- Four Cable Suspension . . . eliminates swinging, permits lifting 10,000 pound loads with ease.
- Dual Controls . . . may be operated from either side of truck.

JIFFY LIFT

For Complete Information, Write, Wire, or Phone today!

ELBERFELD Manufacturing Co., Inc.

Elberfeld, Indiana, U. S. A. • Telephone 131

Circle Service No. 49

Classified ADS

Limited to Want Ads, Consulting Engineers, or Used Equipment ads, (wanted or For Sale)

TRANSIENT WORD ADS: 15c per word for each insertion.

Headings such as "Wanted", "For Sale", etc. and address to be counted as part of the ad. Minimum charge $3.00 each insertion.

POSITION WANTED ADS: $3.00 for 25 words or less; each add'l word 15c.

FOR USE OF BLIND ADDRESS: (Care of BRICK & CLAY RECORD) count as 15 words to cover cost of handling and forwarding replies.

DISPLAY-BOX TYPE ADS

$10.00 per inch. On advance orders for twelve consecutive issues, $15.00 per inch per insertion. (No retroactive adjustment).

An inch is measured vertically on one column, 2¼" wide; three columns on a page. For a two-column advertisement add together height in each column.

Display classified advertisements are set and rates apply in half-inch multiples. (1 inch minimum; 5 inch maximum).

Add 25% to above rates for Reverse Plate (white lettering on black background).

All rates based on payment in advance except on regular contract.

No Agency Commission or Cash Discount

BRICK and CLAY RECORD
A CAHNERS PUBLICATION
5 S. Wabash Ave., Chicago 3, Ill.

WANTED—HELP

CERAMIC ENGINEER—For control and development of ceramic glazes. Glazed facing or wall tile experience desirable. Write Box 5-BEU care of Brick & Clay Record.

WANTED—Ceramics Engineer, good business ability, ten or more years experience Brick Production tunnel kiln. Acquainted with all phases of drying and firing of clay. Write Box 5-BHS care of Brick & Clay Record.

DIRECTOR OF OPERATIONS

Multiplant Brick Producer seeks responsible experienced manager to direct operations including production, maintenance, quality control, engineering, research and construction. Successful record of accomplishment in similar activities is a must. Degree in Ceramic Engineering is highly desirable. Adequate authority assured. Challenging opportunity for growth with national firm. Convenient interviews. Right salary for right man.

Box # 5-BEK,
Care of Brick & Clay Record

POSITION WANTED

CERAMIC ENGINEER—10 years experience in the manufacture of Brick, Load bearing and glazed tile, sewer pipe. Six years as superintendent. Looking for more responsibility and more money. Write Box 5-BHB care of Brick & Clay Record.

POSITION WANTED

POSITION WANTED—Top Sales or Supervisory capacity, have 10 years Brick and Tile Sales experience, both manufacturing and distributor sales. Will consider more if offer attractive and compensation of future assured. Write Box 5-BDP care of Brick & Clay Record.

WANTED

WANTED—Face brick millrom mechanic having exceptional knowledge of dies. Immediate advancement is possible. Replies will be treated confidentially. Address Box 4-BEC care of Brick & Clay Record.

FOR SALE—USED EQUIPMENT

FOR SALE—Steele 40 De-Airing Combination Brick and Tile Machine-Eagle Dry Pan—Raymond Dry Pan—Steele End Cutter—Steele No. One Brick Machine. Bill Taylor, Sulphur Springs, Texas.

FOR SALE—USED EQUIPMENT—Hyster 150 with goose-neck boom and 1500 brick Priester fork 36 x 30 Jeffrey Swing hammer mill, flexible coupling and 75 H.P. Motor. 2—Ingersol-Rand motor blowers with blast gates & motors. 35' Tandem Trailmobile flatbed with side rails and extension arms for Superlite unloader. 24" Potts disintegrator. Beau Brick Works, Inc., Oil Mill Hill, Troy, New York.

FOR SALE—Soft Mud Brick Machine. Make: Posey Iron Works "Auto Brick" capacity 110,000 in 8 hrs, Dryer cars, Steel Pallets and other equipment. Full set in working condition. Available because of change of operations. Direct sale preferred. Call Beacon, New York, 1400, J. Volmars.

I will buy this used equipment: 404A Deairing, 28 x 24 smooth rolls, Tile cutter, Even feeder, roofing tile press, 4-Ray burners, 50 drier cars. Write Box 5-BHL care of Brick & Clay Record.

FOR SALE: Crawler Shale Planer. 6' to 9' Dry Pans. 500 Dryer Cars. Chambers Royal, Steele 30B, 40B, Intl "Porcelain", FRH6 deairing & Freese GH, Steele #1, #2, Amer. 404A & Ray non-deaired Brick Machines. Six Komarek Greaves Briquetting and Boyd 4 mold, Gates 2 mold Dry Presses. Complete Boyd Press Installation. FRH 2B, Steele #18 Cutters. Tunnel Kilns. 4x30, 4x40, 8x125 Rotary Kilns. 4x6, 5x9, 5x21 Ball Mills. Dixie 5060 Hammermill. Vibrating Screens & Conveyors. Mid-Continent Equipment Co., 8321 Gannon, St. Louis 32, Mo. Wydown 1-2826.

DESIRABLE EQUIPMENT
AT REALISTIC PRICES

Crushers and Hammer Mills
Muller type Mixers-Mills
Rotary Dryers and Kilns
Sifters, Screens, Separators
Filter Presses and Filters
Ball & Pebble Mills
Raymond Imp Mills, All Sizes
Presses and Pellet Machines

Send for "First Facts"

FIRST MACHINERY CORP.
209-10th St. Bklyn. 15, N.Y.
ST. 8-4672; Cable "Effemcy"

FOR SALE—USED EQUIPMENT

MUST BE MOVED

2—Davenport 8' x 60' rotary dryers, 7/16" welded shell, internal lifters, oil burners, blowers, drive — complete. Late model — excellent condition!

LOW PRICE FOR QUICK ACTION

IN STOCK
ROTARY DRYERS & KILNS

1—Vulcan 10' x 11' x 175' rotary kiln.
3—National 10' x 78' rotary dryers, ⅝".
2—Hardinge 8'8" x 70' rotary dryers, ⅝".
1—Traylor 8' x 80' rotary dryer, ⅝" welded.
1—8' x 60' rotary kiln, ½" welded shell.
2—8' x 56' rotary kilns, ½" welded shell.
2—Stearns-Roger 8' x 40' rotary dryers.
1—7'6" x 62' rotary kiln, ½" shell.
1—Bonnot 7' x 60', ⅝" shell.
1—6' x 7' x 100' rotary kiln, ⅞" shell.
1—Bonnot 6' x 52', 5/16" shell.
1—Louisville 6' x 50' rot. steam tube dryer.
2—4'9" x 32' rotary dryers, ⅜" shell.
1—Ruggles-Coles 5'6" x 40' rotary dryer.
1—Standard 3' x 23' rotary dryer, ¼".

PERRY EQUIPMENT CORP.
1432 N. 6th St. Phila. 22, Pa.
POplar 3-3505

ONE Steel Model 20-E combined auger de-airing machine and one Model 20-E.
FIVE assorted brick dies, 7 hollow tile-patio die and roman brick die.
ONE, Steel No. 40-E combined de-airing machine
ONE, Real Hand cutter.
ONE, Steel No. 18 Automatic Cutter.
ONE, International De-airing Combined Falcon, with extra liners knives, pinion shaft resurfaced augers—good condition.
ONE, American Automatic No. 858 Automatic Electric Cutter good condition.
TWO Fernholtz 48" cage type ulverizers, one SK.F. bearing the other water cooled babitted bearing, all good condition.
ONE, No. 1 and No. two Paird Pot Machines with seven pot dies, all good condition.
ONE, Model W.6422 4½ x 4 twin cylinder water cooled Quincy Vacuum Pump excellent condition.
ONE, 4' x 40 ft/horizontal refractory lined dryer with stack combustion chamber 5½ hp. motor gear reduction drive Johnson oil burners, good condition.

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DEAIRING BRICK MACHINES—3 sizes
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GRANULATORS—Chambers #51 Freese P-16
CUTTERS—Chambers, Steele #18 & Hand
DRY PANS—7' & 9'
HAMMER MILLS—Many Sizes
SMOOTH ROLLS—12", 18" & 24"
CONICAL ROLLS—Chambers & Brewer
DISINTEGRATORS—12", 18", 24"
JAW CRUSHERS—Many sizes
GYRATORY CRUSHERS—Allis Chalmers #5

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DRY MIXERS, Lancaster SKG, #3, #4, Simpson #3 Clearfield #610
SIGMA BLADE & RIBBON MIXERS—Several SCREENS—Many—Single & Double Deck
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1—American 404-A Brick Machine with de-airing features removed
1—Gleason Portable Shredder with Slinger belt assembly—good condition

Tri-State Brick & Tile Co., Inc.
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DE-AIRING MACHINES—FRH (PA4) 5HP—FRH (PR6) 7½HP—J. C. Steele 80 Special, 15" auger 100 HP—Bonnot 18" auger 150 HP—American (801) 18" auger 200 HP

CUTTERS—Automatic Reel—J. C. Steele #18—Freese P25, 10" belt—Chambers #10, Roman & Norman brick

PUG MILLS—9' Freese—10' American (2nd shaft)—15' Granulators Freese/Chambers

DRY PANS—7' American—9' Bonnot—2 American 418 grinders

DRYERS—24" x 24"—3' x 24'—5' x 40'—6' x 20'—7' x 58' (50 HP gearmotor)

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GOOD Small modern brick and tile plant. Large deposit dark and light burning clay; extra good year round market territory. Address Box 1-BAL, care of BRICK & CLAY RECORD.

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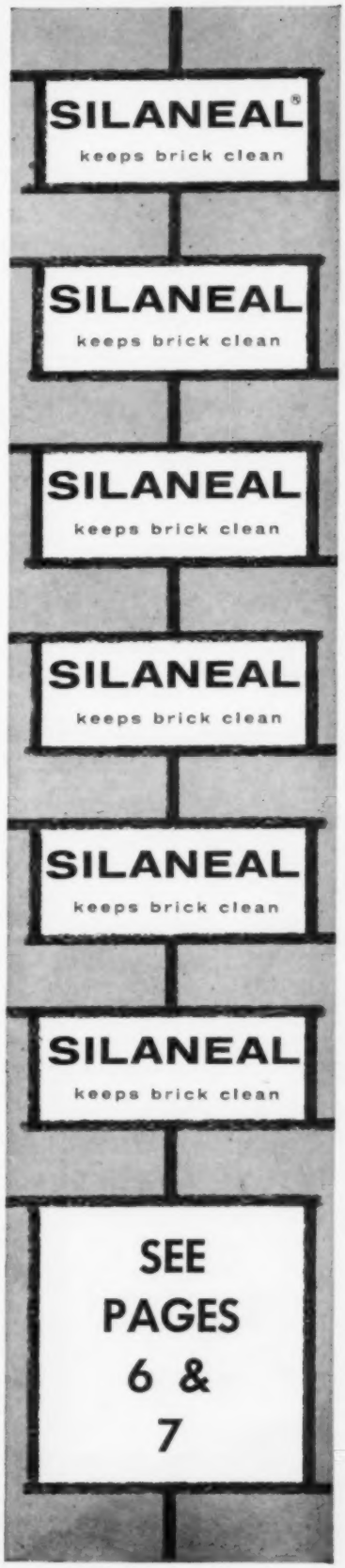

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Full 1/8" standard segment depth. Special discounts for quantity users. Special low price made possible by mass demand — mass production. Try one soon and start saving.

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In seconds the cutting head is raised or lowered to the precise height desired. The first hydraulically operated saw for the masonry industry. Ask for a demonstration.

TAK-A-BOUT "JR," PORTABLE SAW

Big saw features in a portable unit. Use it on scaffolds, inside boilers, on your truck, on a bench. 1, 1½ and 2 horsepower models.

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NOTICE!

Dealerships available in some areas. Write or phone for information.

Circle Service No. 51

Calendar of Events

May 19-29—Joint Meeting, Alabama Brick & Tile Manufacturers Association and Mississippi-Louisiana Brick & Tile Manufacturers, Grand Hotel, Point Clear, Ala.

June 22-23—Spring Membership Meeting, The Refractories Institute, The Greenbriar, White Sulphur Springs, W. Va.

June 28-30—Pennsylvania Ceramics Ass'n. 16th Annual Meeting, University Park, Pa.

July 21-22—Expanded Clay & Shale Association, Americus Hotel, Allentown, Pa.

Sept. 27-30—Materials & Equipment Division, American Ceramic Society, Bedford Springs Hotel, Bedford, Pa.

Oct. 5-7—Refractories Division, American Ceramic Society, Bedford Springs Hotel, Bedford, Pa.

Oct. 18-21—Structural Clay Products Division, American Ceramic Society, Mellon Institute, Pittsburgh, Pa., Headquarters, Webster Hall Hotel, Pittsburgh, Pa.

¾ yd. capacity for fork lift truck use

HANDLE BULK MATERIALS WITH ECONOMY AND EASE IN CHASE DUMP HOPPERS

Sturdy construction and careful balance make this self-dumping hopper ideal for handling bulk materials, parts, scrap, etc. Models for use with platform or fork lift truck. All welded construction, using 3/16" steel plate. One man can operate the hopper alone — the hopper automatically dumps and returns to locked upright position. Special styles may be stacked full or empty. Sizes to suit your needs. Write for catalog sheet and prices.

Chase FOUNDRY & MANUFACTURING CO.

2350 Parsons Avenue • Columbus 7, Ohio

Circle Service No. 52

GRAVELY KILN CAR TRACTOR

PUSHES COSTS DOWN!

MOVE LOADED CARS WEIGHING OVER 100,000 LBS!

The 6.6 hp Gravely "Kiln Car" tractor is specially adapted to move your cars in and out of tunnel kilns, spot to off-bearing belts or storage areas.

Gravely engineered the new tractor exclusively for brick and ceramic plant use, after serving the industry for years. The tractor features a customized Front Hitch to fit *your* cars!

Gravely Users Report: (Gravely) is "small enough to get around among the crowded tracks, yet powerful enough for the job of moving the cars." R.R., Jackson, Miss. "We can recommend it (Gravely) very highly to other manufacturers in the industry." A.L., Gorham, Maine. *Investigate For Yourself!*

30 GROUNDS MAINTENANCE TOOLS!

Extra Dividend! The same Gravely Tractor powers 30 year-round *ground maintenance* tools.

FREE LITERATURE—DEMONSTRATION!

Send for special "Kiln Car Circular" and "How To Cut Costs" catalog. See on-the-job pictures and detailed information on Gravely Equipment. Ask about a Free Demonstration!

GRAVELY TRACTORS

P.O. BOX 649-E DUNBAR, W. VA.

Circle Service No. 53

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*See Our Catalog in 1960-1961 Ceramic Data Book

Call FERNHOLTZ First!
Fernholtz Machinery Co., 8468 Melrose Pl., L.A. 46

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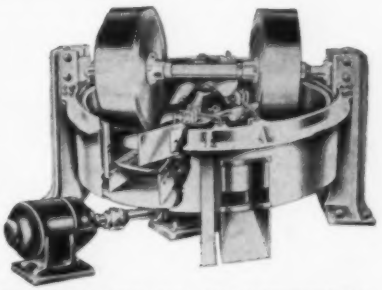
The new high-efficiency Model 900 Dry Pan by CLEARFIELD assures lower production cost and easier maintenance with its totally-enclosed direct motor drive. The new model comes in 8½ or 9-foot diameters. Vibration is reduced, less power needed, and maximum crushing area is covered per revolution. All parts durably constructed for long-life service with minimum maintenance.



Ask for free bulletin 900DP-BC 3

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STEEL TIPPED NYLON COVERED HINGE PIN . . . WILL NOT MIGRATE!

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LONG-WEARING TUFHORSE MITTENS AND PADS GIVE EXTRA PROTECTION

Tufhorse KANT-RIP

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Increase the output of your men. Protect their hands with Tufhorse hand pads, gloves or mittens. Made of heavy, durable cowhide, Tufhorse Kant Rips are flexible, tough, help men work faster.

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Please send free sample of your (.....) hand pad, (.....) glove, (.....) mitten for testing. (Specify which one you want).

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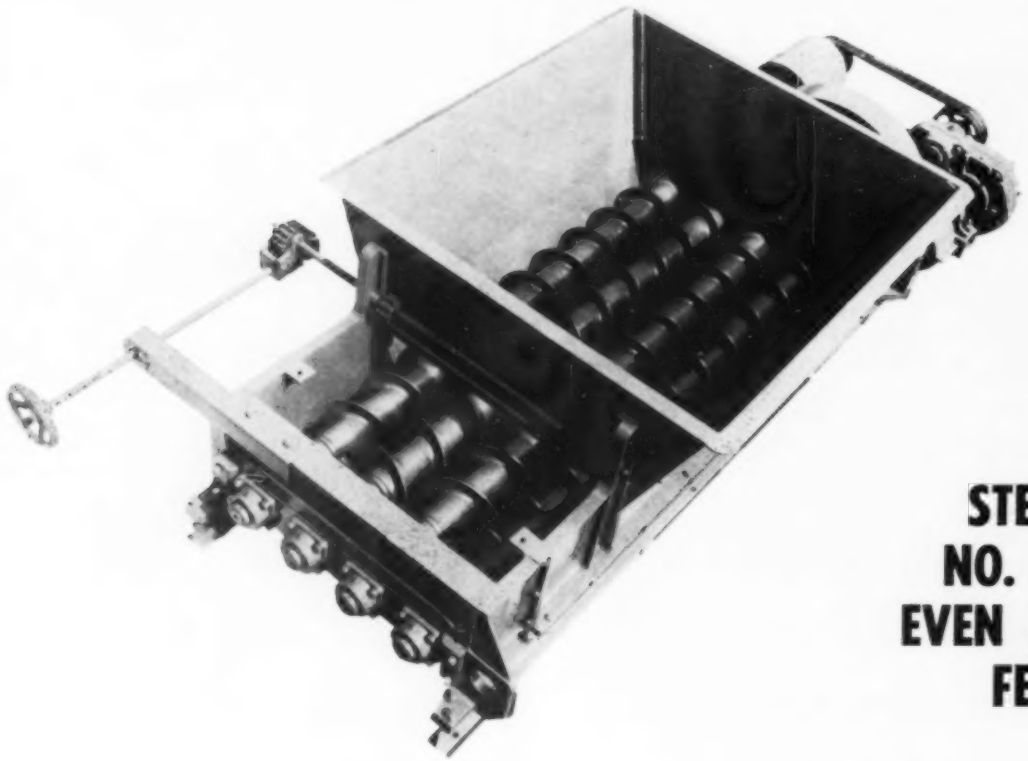
Circle Service No. 56

It Can't Cook! but it can sure FEED



STEELE'S NO. 88-C EVEN CLAY FEEDER

No other feeder handles the variety of materials that the 88-C is successfully feeding in hundreds of installations. It's just about the only good feeder for moist, sticky clay. With granular materials it's fine under large bins or silos for uniformly feeding without choking, arching, or bridging. Its hopper is ample for direct charging with a front end loader.

The 88-C draws the line at big rock-hard lumps. Can't digest 'em. With nearly anything else it feeds like a champion; day after day, year after year — without regard to weather conditions and most other variables.

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THE BEST IN CLAY MACHINERY SINCE 1889

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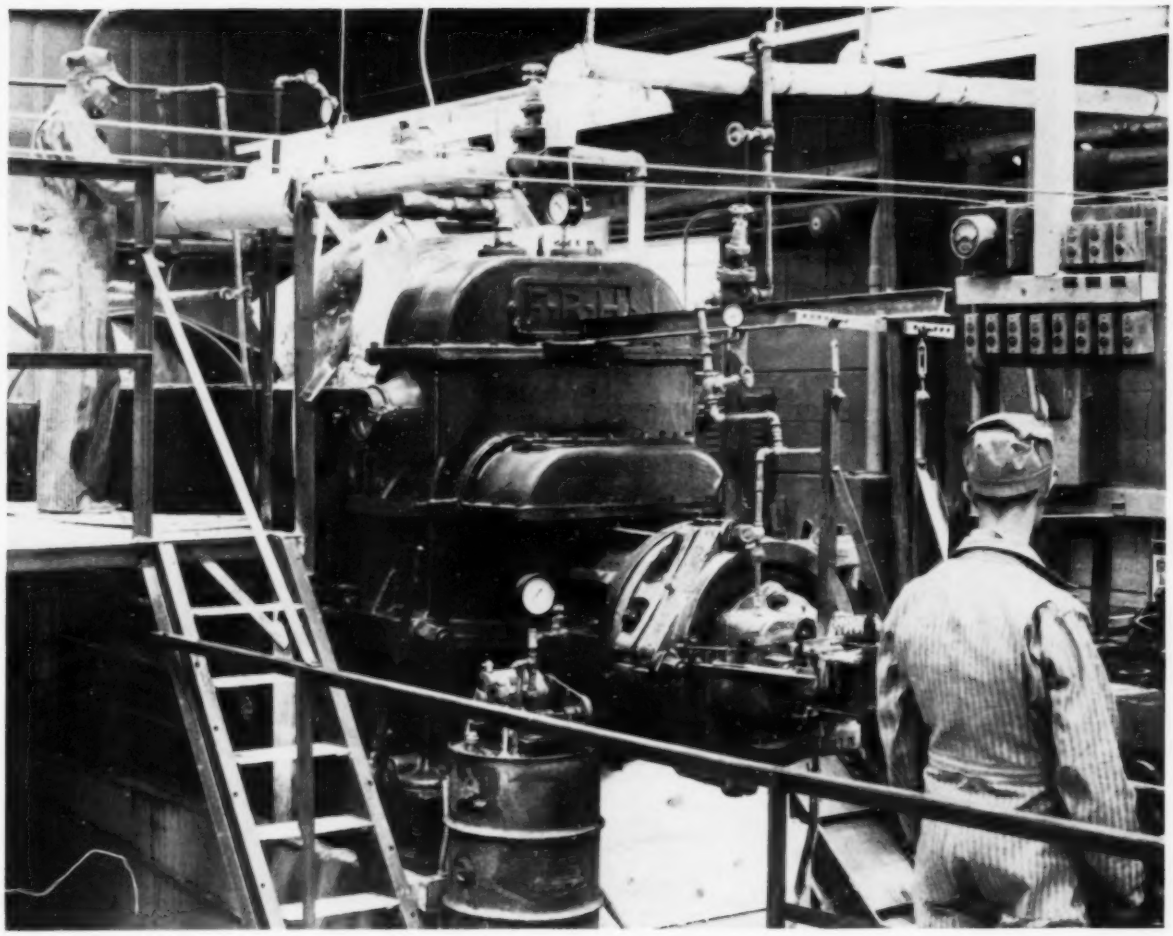

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Reports Alliance Brick Corp., Alliance, Ohio

"Excellent," is the way Mr. Leo K. Edgar, Superintendent of Alliance Brick Corporation, Alliance, Ohio, describes the operating qualities of the F-R-H De-airing Extrusion Machine currently in use at his plant —where F-R-H equipment produces high quality face brick, turns out almost half a million units per week.

"Our brick production is up about 100,000 units for a 40-hr. work week, maintenance time is down considerably—since we began using F-R-H De-airing Extrusion equipment about 3 years ago," says Mr. Edgar. "Present product quality is much better, too!"

Find out today how F-R-H Brick and Tile Machines can increase production, improve product quality, reduce operating and maintenance costs for you. Simply send a brief outline of your operations to The Fate-Root-Heath Company, Dept. B-1, Plymouth, Ohio.

F-R-H

CERAMIC MACHINERY

For 100% Operating Efficiency

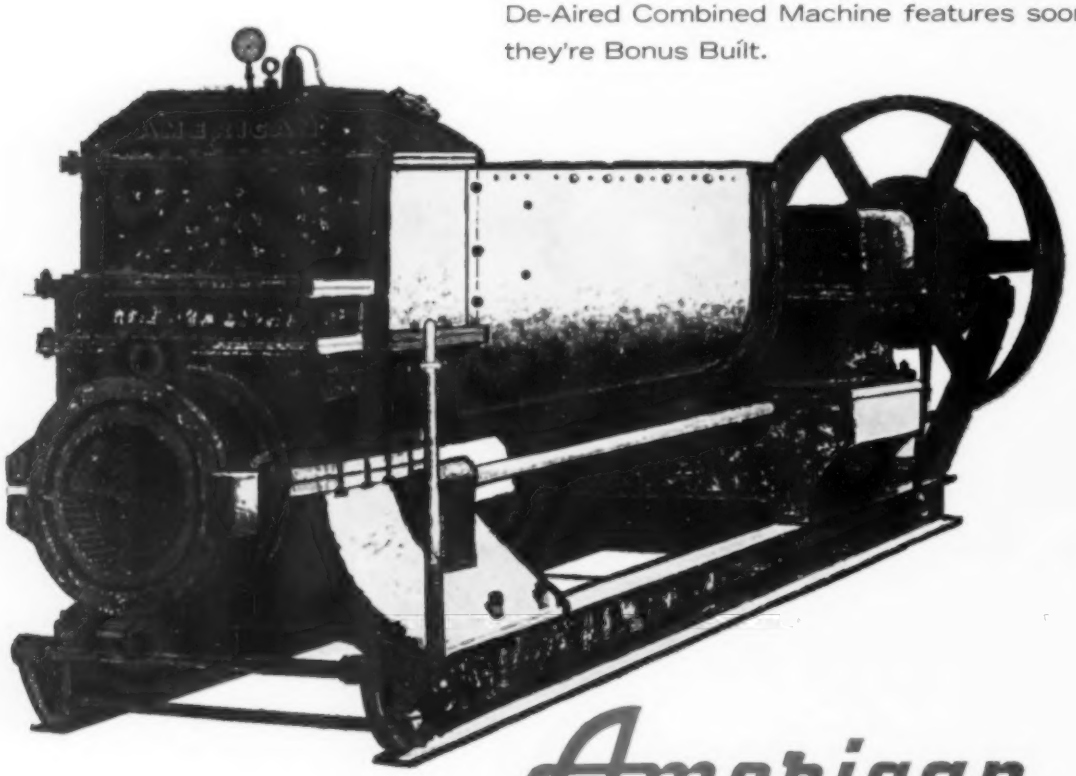
Order Genuine F-R-H Relpacement Parts Directly From Factory

Circle Service No. 58

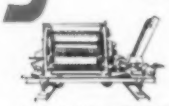
COMBINE THREE OPERATIONS FOR INCREASED PROFITS

The American De-Aired Combined Machine can increase your plant's profits by handling three jobs fast and efficiently. It pugs, de-airs and extrudes in one continuous operation. Design of the pugging knives, crowders and augers help prevent bridging and clogging of clays which slow down production. The unit is compact and requires only a minimum of floor space. Three models are available to fit every type of application including building and refractory bricks, hollow ware and tiles. Capacities per hour range from 3,000 to 10,000 bricks and 10 to 40 tons of hollow ware and tiles. Check all the American De-Aired Combined Machine features soon . . . they're Bonus Built.

Do Your Job The AMERICAN Way



American
CLAY MACHINERY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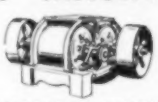
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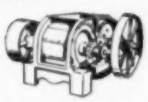
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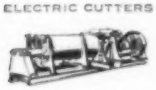
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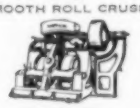
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DE-AIRED COMBINED MACHINES

DIVISION OF
HUBER-WARCO COMPANY - Marion, Ohio, U.S.A.

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